STATE OF NEVADA

Nevada
DEPARTMENT
OF
EDUCATION

GRADE 5

Nevada

CRITERION REFERENCED TESTS

REVIEW GUIDE

999-8187-99-0

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INTRODUCTION

Purpose

The Criterion Referenced Tests (CRT), as mandated by legislation (Nevada Revised Statute 389.550), are designed to provide a means of measuring student academic achievement and proficiency in the Nevada State Content and Performance Standards. They are intended to help ensure that students are appropriately prepared in the curricula as set forth in the state standards. Unlike a norm-referenced test that is designed to compare an individual student, school, district, or state test score to an average score as determined by an entire test-taking population, the criterion-referenced test score is reported in terms of both group and individual student outcomes based on a pre-determined criterion of correct responses to measure proficiency and achievement levels.

This review guide is intended to be used by teachers, principals, and school districts as a supplemental tool — one that complements current efforts aimed at preparing students for the state proficiency examinations and/or remedial efforts based in part on student test performance. Each test includes only a portion of the curriculum content that students are expected to know. Although the guide provides a sampling of representative items for the CRT, the sample of items does not constitute a practice test and was not designed to provide "drill" activities.

Rationale and Philosophy

The Nevada comprehensive assessment system serves as an ongoing evaluative technique that allows monitoring of the extent to which students are acquiring necessary knowledge and skills. While necessary knowledge and skills may be characterized in multiple ways, they are primarily defined through the state content and performance standards that provide the basis of aligned curriculum and instructional practice.

Assessment can be viewed as multi-faceted. It can be considered as an objective monitoring tool that stands outside the triangle of standards, curriculum, and instruction. It can also be regarded as an integral aspect of curriculum and as an instructional tool. It may be that different assessment strategies can serve these multiple facets. If so, as is the case with standards, curriculum, and instruction, multiple forms of assessment, including varied large-scale assessments and site-based assessments, must be interlocked or aligned. As such, Nevada's assessment efforts are part of statewide systemic reform.

National Assessment of Educational Progress (NAEP)

Nevada is among the states that receive Title I funding and must therefore participate in state NAEP norm-referenced assessments in reading and mathematics at grades 4 and 8. A sample of Nevada students will be tested through the National Assessment of Educational Progress program in reading annually each spring from years 2002 to 2010 and in mathematics from 2003 to 2010. In addition, the NAEP science assessment will be given in years 2004 and 2008 and the writing assessment will be given in years 2002, 2006, and 2010. Information on these assessments may be obtained at http://nces.ed.gov/nationsreportcard/.

Norm-Referenced Assessment

The norm-referenced assessments, as described in Nevada Revised Statute 389.015, are administered annually each fall to every Nevada student in grades 4, 7, and 10. Subjects tested include reading/language arts, mathematics, science and social studies. The current testing contractor is Riverside Publishing Company, and it is responsible for the distribution and scoring of the Iowa Tests of Basic Skills in grades 4, 7, and 10.

(For more information, go to http://www.riverpub.com/products/group/itbs_a/home.html), and the Iowa Tests of Educational Development in grade 10 (for more information, go to http://www.riverpub.com/products/group/ited_a/home.html).

Criterion-Referenced Assessment

The Nevada CRT program was initially mandated in 1999 and piloted in the 2000-2001 school year in mathematics and reading in the 3rd and 5th grades. The 5th grade science test and the 8th grade mathematics, reading, and science tests were field tested in the 2002-2003 school year. The test items are developed by Nevada teachers with the assistance of the Nevada Department of Education, Harcourt Educational Measurement Company, and the WestEd Regional Educational Laboratory. Nevada test items undergo a thorough review for alignment with Nevada Standards and for possible bias. Students will be tested in the spring within the testing window of March 15–April 15, 2004. Each test takes approximately 120 minutes and contains between 50 and 75 items. Ten to fifteen field test items, used for future test development, are embedded in the total item count number.

Since each form of assessment taken individually may serve a narrower purpose, each assessment in the Nevada Proficiency Examination Program must be considered in conjunction with all other forms of assessment. This concept is consistent with the adage that the whole is greater than the sum of its parts. Each form of assessment provides useful bits of information, but the interpretation of student and school achievement is better informed by looking at the influence of multiple measures. (See Figures 1 and 2.)

Figure 1 — A Complementary System Of State, Local, And Building Level Assessment Practices

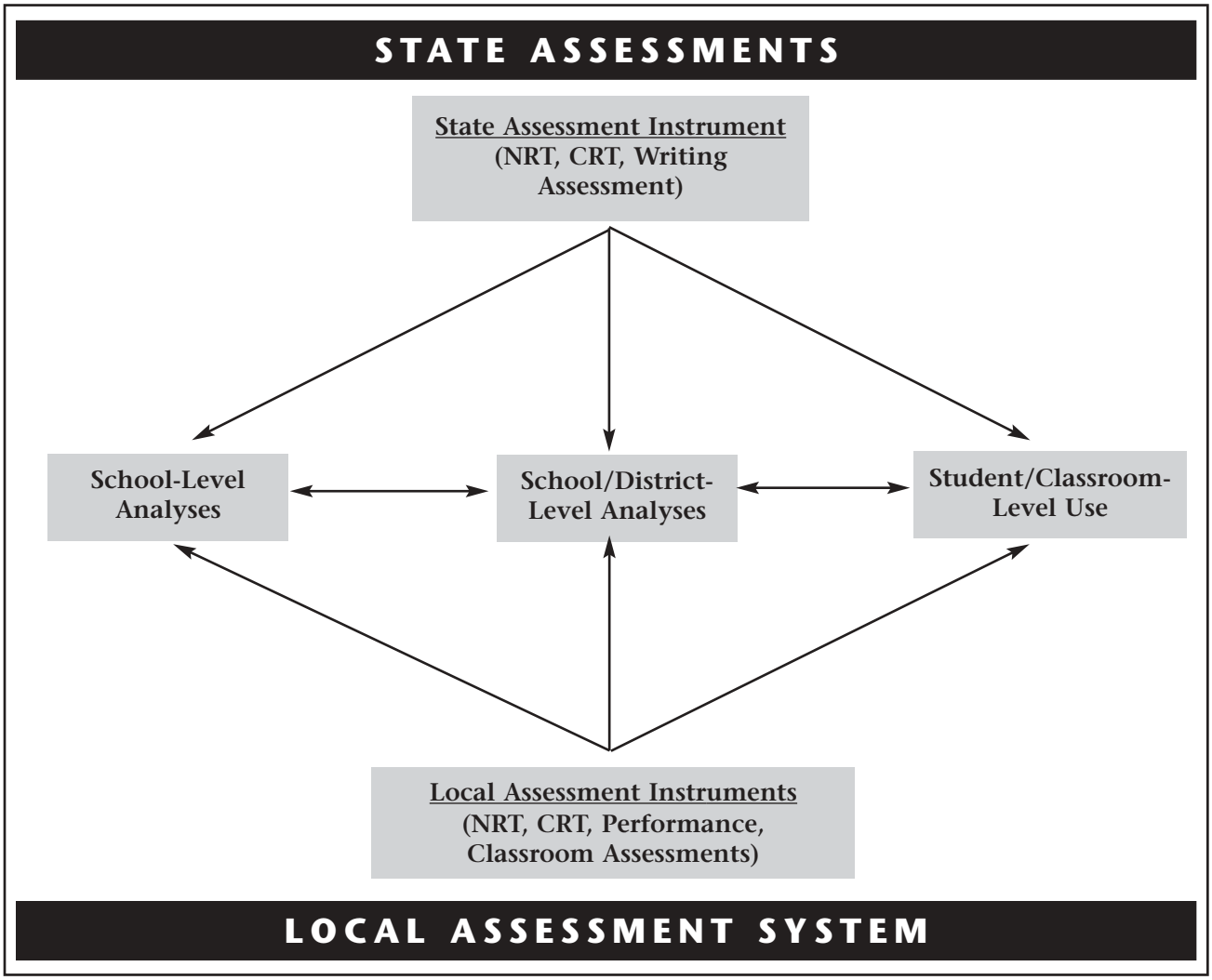
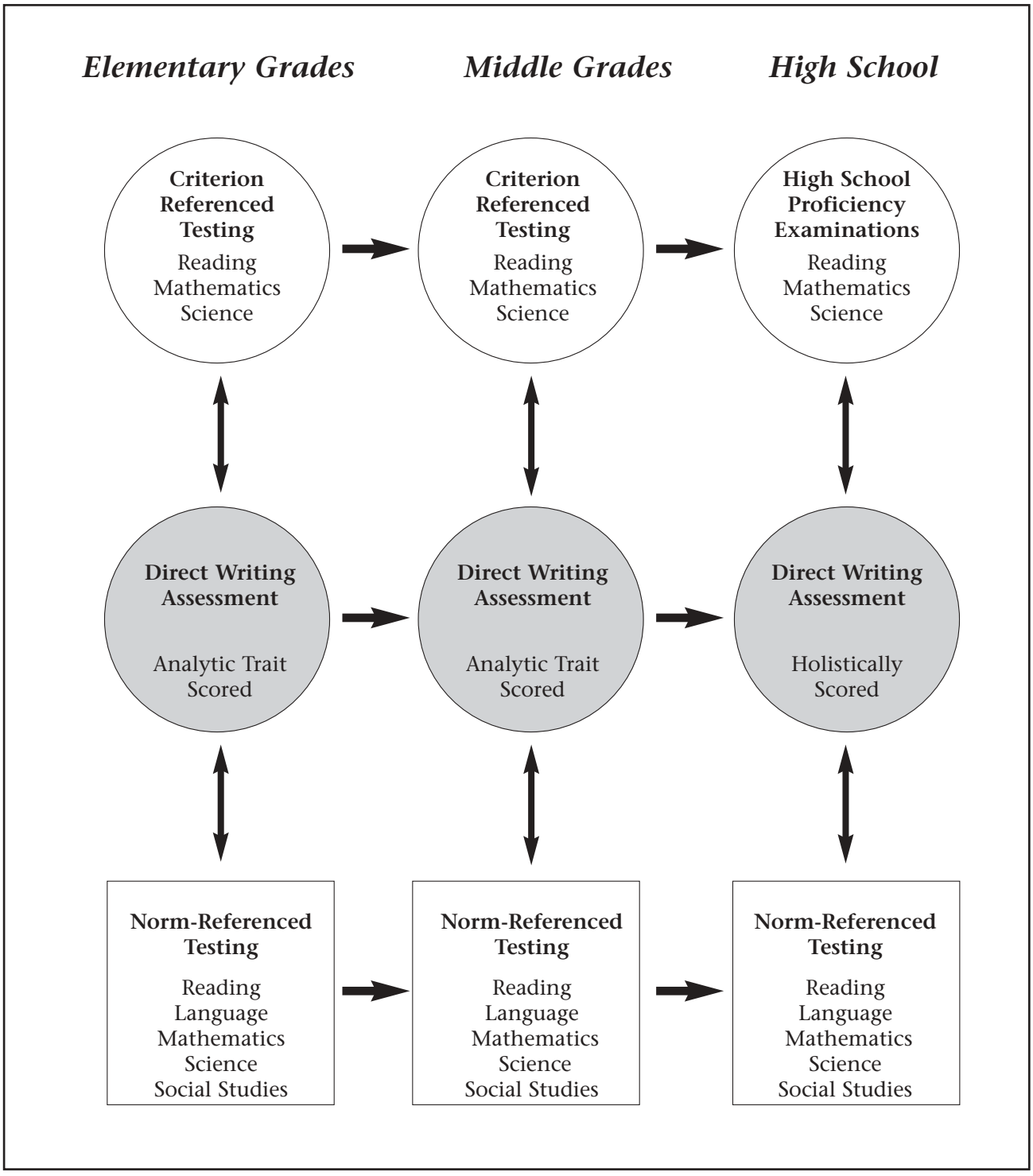


Figure 2 — State-Level Assessment Flow



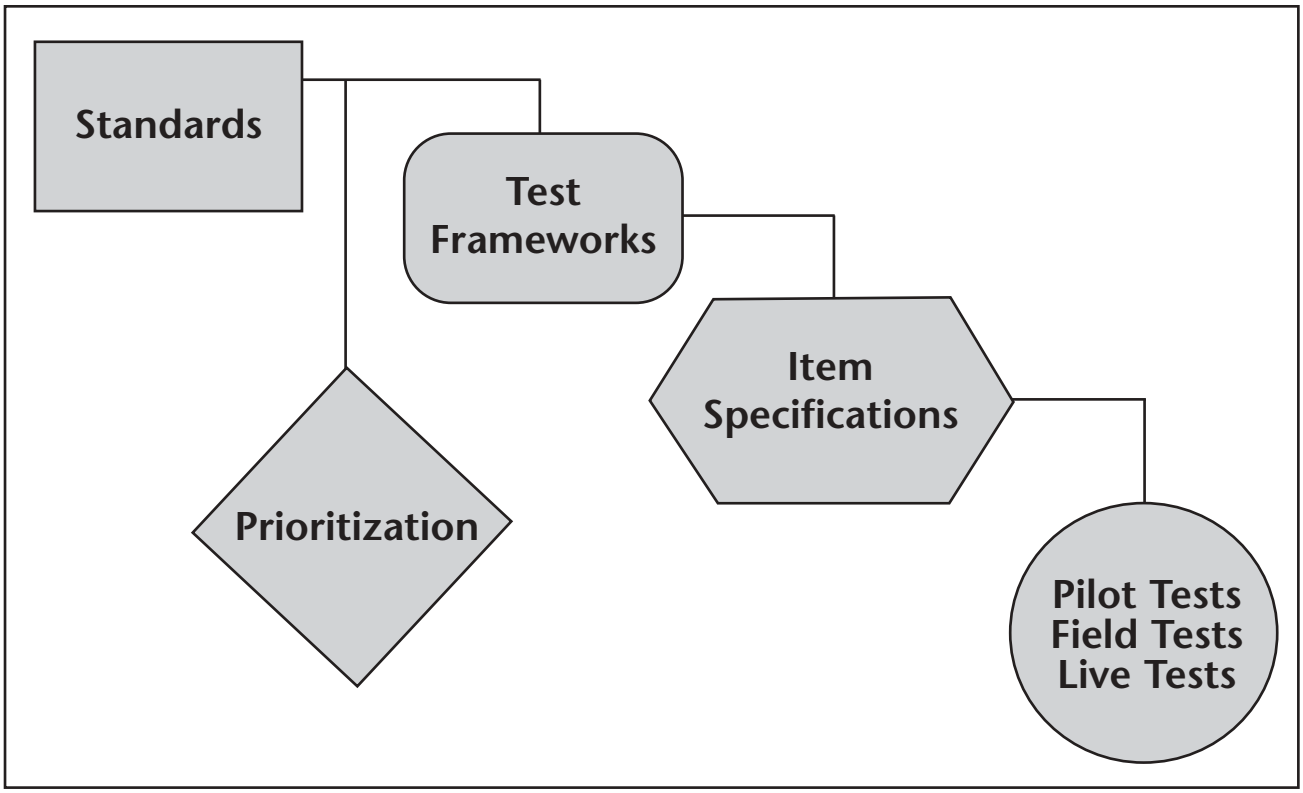
Accountability and Alignment

Current reform initiatives, most recently the federal *No Child Left Behind Act*, are built on the notion of "results-based" accountability. Stated simply, students are responsible for learning standards-based content knowledge and skills, and educators are responsible for providing students with the opportunity to learn and demonstrate that knowledge and those skills.

This much is known about accountability systems and the role of assessments: When the stakes are high, whether applied to students or to schools, the assessments drive classroom instruction and/or behavior, and there is motivation to perform well on the accountability measures. Directing instructional change can be desirable and is arguably the goal or role of accountability. How assessments affect instruction or curriculum is a key concern and leads to the issue of alignment between standards and assessments. Unless this alignment is clear, the results of accountability cannot be reliable.

For the assessments and the accountability system to support the overall goals of improving student learning and school improvement, the assessments must measure the standards. Unfortunately, the language of "standards" is not always easily applied to assessment or measurement. Work must be done to translate the standards into a form that is conducive to assessment, yet does not compromise academic expectations. This can be achieved in multiple ways and has been accomplished in Nevada using the following method (See Figure 3).

Figure 3 — Translation is One Step in the Alignment



The articulation of standards into a form appropriate for school- and classroom-level assessments is needed for a variety of reasons. First of all, it provides a clear plan for developing test items and tasks. This gives some assurance that, at the state level, measurements are aligned with expected proficiency of student performance based on the state standards. In addition, it supports the development of school district or classroom assessments that are aligned to both the state academic expectations and other forms of assessment that comprise the total assessment system. Aligning different types of assessments is required to achieve systemic reform.

The articulation of standards, ultimately in the form of assessment, also helps serve another critical purpose. It communicates what is expected from students in the form of knowledge and skills acquisition as well as what is expected from schools in terms of curriculum and instructional delivery. In addition, students, parents, and teachers must know how students will be assessed and the decisions that will be made based on their performance.

One of the critical features of the interpretation of standards in Nevada has been the prioritization of standards. After the standards were written and adopted, a statewide committee of district-nominated educators were brought together to make decisions regarding the assessment of the standards. Groups of teachers and other educators had the task of taking each standard and objective and noting whether it was indicative of being ***enduring*** (i.e., essential knowledge and skills students need to internalize and retain), ***important*** (i.e., knowledge and skills students need to expand their understanding, make connections, and comprehend new or unfamiliar information), or ***worthwhile*** (i.e., students should be familiar with key concepts, ideas, facts, and terms). Next, educators made decisions as to whether a standard/objective might best be assessed at the state or local level. This process resulted in a clear subset of standards and objectives that were denoted as being enduring or important as well as testable at the state level.

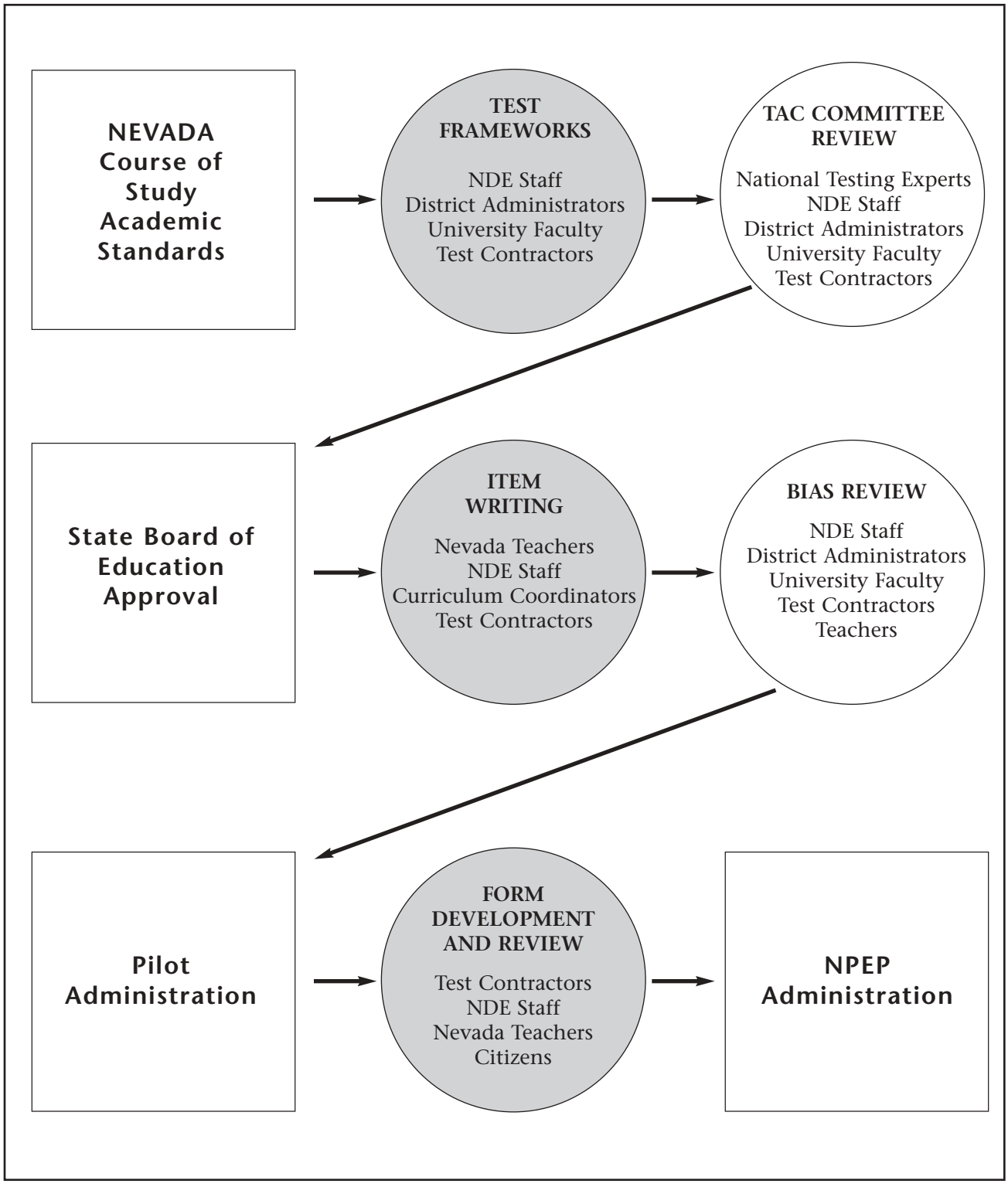
The prioritization process is important for several reasons. First, the breadth and depth of the Nevada Content Standards make it very difficult to provide a comprehensive assessment. Second, although a lengthy assessment process might be seen as optimal, cost and time spent testing are practical constraints. Third, the prioritization process allows for a finer distinction in those aspects of the standards that are essential for state assessment. This, of course, is a critical undertaking. As stated previously, testing will direct curriculum and instruction, and any narrowing of curricular scope could be detrimental to including all the standards in classroom instruction. It is important to note that the prioritization process did not exclude any of the standards/objectives from assessment. Instead, it called for the assessment of all standards/objectives at the local level, and a specified set of knowledge/skills to be assessed at the state level.

Development

The cornerstone of the test development process of the Nevada Proficiency Examination Program is teacher involvement in the writing and reviewing of test items. This test-building process for state assessments is comprehensive and involves national and local educators, as well as technical assistance from regional education laboratories and testing contractors. Prior to writing items, teachers are provided thorough training designed to assist them in writing quality items that are free from bias and clearly aligned to specific prioritized content standards. Throughout item writing sessions, time is dedicated to peer-review of item drafts, which includes validating the matched items to specific content skills.

Figure 4 illustrates the development process for test items. It begins with the state standards and the construction of test frameworks and specifications for them, followed by a review of these documents by a Technical Advisory Committee (TAC) and policy boards. After approval from the Nevada Board of Education, educators who have been nominated by district administrators from around the state begin the item writing process, which includes the construction of items/tasks and the qualitative bias review of test items/tasks and reading passages. Items are analyzed to ensure they do not convey insensitivity to a particular group, violate privacy issues, or differentially impact opportunity and access. A variety of educators and other citizens are involved in the review process with the goal of building a culturally diverse team that is representative of the state population, with teachers always serving in this primary role. Reliance on teacher involvement in the writing and review process provides confidence that the state assessments accurately measure content being taught in Nevada classrooms. Once written and reviewed, items are field tested with Nevada students. Based on a statistical and qualitative review of the field-tested items, test forms are constructed, submitted for a comprehensive review, and ultimately formally administered to students.

Figure 4 — The NPEP Development Process



Reporting

In order for assessments to serve the purposes of improving student learning and classroom instruction, assessment results must be reported in a manner that facilitates the interpretation of student performance. The reporting of results must be tied directly to the expectations for student learning.

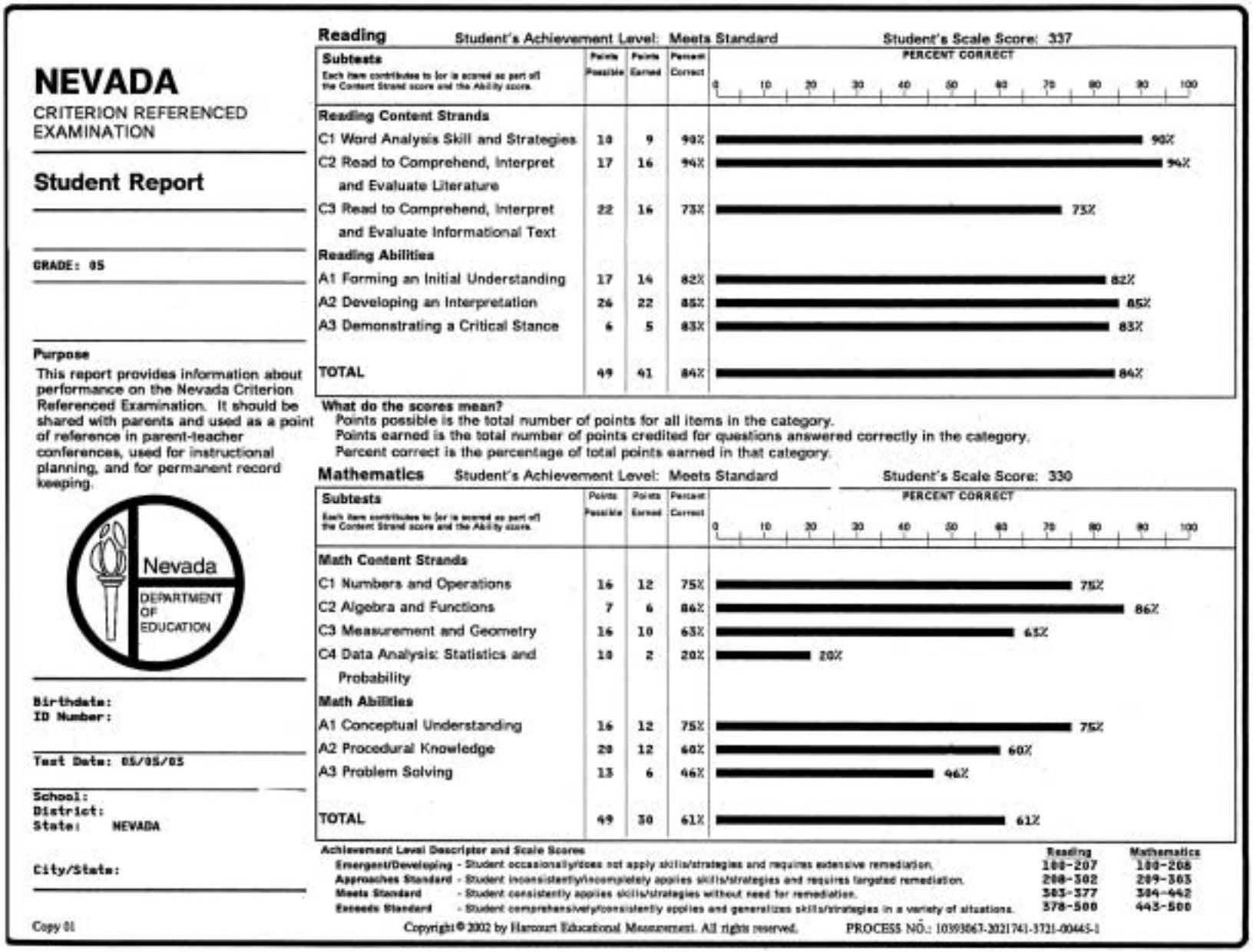
The state provides a variety of score reports in paper format including student, school, district, and state level summary reports. Additionally, "raw" data is provided to school districts in electronic format to allow for more precise analyses. The integration of results from the multiple levels of assessment (i.e., state vs. classroom) requires the use of electronic media. The state is currently pursuing the adoption of web-based reporting software that can make the "raw" data available in varying degrees of specificity to all education stakeholders. In particular, teachers would be able to access data representing their own classroom, school, and/or district.

Although the electronic transfer of results is optimal, the paper reports disseminated by the state must still convey important information with clarity. The student level summary report conveys both diagnostic and general achievement information (see Figures 5a and 5b). It provides information pertaining to the number of items possible, the number of items correct, and the percentage of items answered correctly relative to a particular content standard (i.e., in Reading, *Read to Comprehend*, *Interpret and Evaluate Literature*, or in Math, *Algebra and Functions*). In addition, it provides information on the cognitive domain (i.e., in Reading, *Developing an Interpretation* or in Math, *Procedural Knowledge*).

The scale score obtained by the student is specified at the top of the score sheet and a key is provided at the bottom qualifying the achievement levels by descriptors of the scale scores, i.e., emerging/developing, approaching standard, meeting standard, or exceeding standard. The scale score is derived by mapping each raw score to a scale score through a linear transformation process where student ability, test difficulty, and student guessing are factored into the equation. The cut scores of 200 for *Approaches Standard* and 300 for *Meets Standard* were established during the Nevada Standard Setting process in 2002. The *Exceeds Standard* cut is also fixed, but may vary minimally for each test. While the raw score percentage correct required to attain each achievement category may change from year to year and may differ from subject to subject, the scale score cuts remain constant. As a result, for some test forms or subjects, students could receive relatively high percentages of correct answers and not meet the standard, while with other forms they could receive relatively moderate scores and could meet or even exceed the standard, depending on the difficulty of the test form and the achievement level cuts established in the standard setting process.

The number/percentage correct information provided on the Student-Level Summary Score Report has limited diagnostic value. For a particular administration, it does indicate performance relative to the more specified content areas; but the limited number of questions related to any particular standard or domain, in addition to the number of skills encompassed within the standard, prevents a highly reliable estimate of performance. However, if this information is combined with classroom-based information, a strong diagnostic picture can be created. For example, if a student correctly answers 5 of 10 items pertaining to *Numbers and Number Sense* on the state test, it would suggest some relative weakness. However, because each test form is but a sampling of content from the standards, it is important to validate the state level performance information with classroom level information relative to *Numbers and Number Sense* (assignment grades, class quizzes, teacher observation, etc.) before major remedial efforts would be implemented for any student.

Figure 5a — Student-Level Summary Score Report Grade 5 (Front)



NEVADA

CRITERION REFERENCED EXAMINATION

Student Report

GRADE: 05

Purpose

This report provides information about performance on the Nevada Criterion Referenced Examination. It should be shared with parents and used as a point of reference in parent-teacher conferences, used for instructional planning, and for permanent record keeping.

Nevada DEPARTMENT OF EDUCATION

Birthdate:
ID Number:

Test Date: 05/05/05

School:
District:
State: NEVADA

City/State:

Copy 01

Reading

Student's Achievement Level: Meets Standard

Student's Scale Score: 337

Subtests (Each item contributes to [or is scored as part of] the Content Strand score and the Ability score.)	Points Possible	Points Earned	Percent Correct
Reading Content Strands			
C1 Word Analysis Skill and Strategies	10	9	90%
C2 Read to Comprehend, Interpret and Evaluate Literature	17	16	94%
C3 Read to Comprehend, Interpret and Evaluate Informational Text	22	16	73%
Reading Abilities			
A1 Forming an Initial Understanding	17	14	82%
A2 Developing an Interpretation	26	22	85%
A3 Demonstrating a Critical Stance	6	5	83%
TOTAL	49	41	84%

PERCENT CORRECT: 0 10 20 30 40 50 60 70 80 90 100

What do the scores mean?

Points possible is the total number of points for all items in the category.
Points earned is the total number of points credited for questions answered correctly in the category.
Percent correct is the percentage of total points earned in that category.

Mathematics

Student's Achievement Level: Meets Standard

Student's Scale Score: 330

Subtests (Each item contributes to [or is scored as part of] the Content Strand score and the Ability score.)	Points Possible	Points Earned	Percent Correct
Math Content Strands			
C1 Numbers and Operations	16	12	75%
C2 Algebra and Functions	7	6	86%
C3 Measurement and Geometry	16	10	63%
C4 Data Analysis: Statistics and Probability	10	2	20%
Math Abilities			
A1 Conceptual Understanding	16	12	75%
A2 Procedural Knowledge	20	12	60%
A3 Problem Solving	13	6	46%
TOTAL	49	30	61%

PERCENT CORRECT: 0 10 20 30 40 50 60 70 80 90 100

Achievement Level Descriptor and Scale Scores

		Reading	Mathematics
Emergent/Developing	- Student occasionally/does not apply skills/strategies and requires extensive remediation.	100-207	100-208
Approaches Standard	- Student inconsistently/incompletely applies skills/strategies and requires targeted remediation.	208-302	209-303
Meets Standard	- Student consistently applies skills/strategies without need for remediation.	303-377	304-442
Exceeds Standard	- Student comprehensively/consistently applies and generalizes skills/strategies in a variety of situations.	378-500	443-500

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Figure 5b — Student-Level Summary Score Report Grade 5 (Back)

READING

Additional information about the Nevada content areas can be viewed at the Nevada Department of Education website, www.nde.state.nv.us. The Nevada Criterion-Referenced Examination in Reading contains passage selections with a variety of questions ranging in difficulty which test how well a student can perform reading activities based on:

READING CONTENT STRANDS

Word Analysis Skill and Strategies (C1)

- Use knowledge of phonics, structural elements, grammar, and syntax to read and to determine the meaning of unfamiliar words in context.
- Identify and use the meanings of high frequency Greek-and Latin-derived roots and affixes to determine the meaning of words.
- Find word origins and determine meanings of unknown words using dictionaries and glossaries.
- Use context clues such as restatement, definitions, and examples to determine the meaning of unknown words.

Read to Comprehend, Interpret and Evaluate Literature (C2)

- Select and use a variety of skills and strategies during reading such as identifying main idea, identifying fact and opinion or cause and effect, verifying predictions, summarizing, paraphrasing, drawing conclusion to aid in comprehension.
- Distinguish the main incidents of a plot that lead to the climax, and explain how the problem or conflict is resolved.
- Make inferences supported by the text about characters' traits and motivations, and make predictions about conflicts and resolutions.
- Compare stated and implied themes in a variety of works.
- Locate and interpret figurative language, including simile, metaphor, and personification in text.

Read to Comprehend, Interpret and Evaluate Informational Text (C3)

- Select and use a variety of skills and strategies during reading such as identifying main idea, identifying fact and opinion or cause and effect, verifying predictions, summarizing, paraphrasing, drawing conclusion to aid in comprehension.
- Use knowledge of format, graphics, sequence, diagrams, illustrations, charts, and maps to comprehend text.
- Draw conclusions from and make inferences about text supported by textual evidence and experience.
- Identify authors' ideas and purposes in texts, including advertisements and public documents.

READING ABILITIES

Forming an Initial Understanding (A1)

- Assesses the initial understanding of what is read ("reading the lines").

Developing an Interpretation (A2)

- Assesses a more complete understanding of what is read ("reading between the lines").

Demonstrating a Critical Stance (A3)

- Assesses the evaluation and consideration of what is read ("reading beyond the lines").

MATHEMATICS

Additional information about the Nevada content areas can be viewed at the Nevada Department of Education website, www.nde.state.nv.us. The Nevada Criterion-Referenced Examination in Mathematics will contain items that test how well a student can perform the following mathematical activities:

MATHEMATICS CONTENT STRANDS

Numbers and Operations (C1)

- Use and apply multiplication and corresponding division facts through 12's.
- Generate and solve addition, subtraction, multiplication, and division problems using whole numbers in practical situations.
- Use order of operations to solve problems.
- Multiply and divide multi-digit numbers by 2-digit numbers, including strategies for powers of 10.
- Use and identify place value.
- Use models and drawings to identify, compare, add, and subtract fractions with like denominators and to add and subtract decimals; use both to solve problems.

Algebra and Functions (C2)

- Using whole numbers as a replacement set, find possible solutions to such inequalities as $8 + 4 > n$.
- Use variables in open sentences and to describe simple functions and relationships.
- Generate number sequences given the first term and any basic computation rule (e.g., given a 4 and the rule of add 6, 10, 16, 22, 28, ...).

Measurement and Geometry (C3)

- Estimate measures of length, volume, capacity, quantity, and weight, communicating degree of accuracy needed and when a more precise measure is required.
- Determine totals and change due for monetary amounts in problem-solving situations.
- Communicate the difference between perimeter and area.
- Identify equivalent periods of time, including relationships between and among seconds, minutes, hours, days, months, and years (e.g., 60 sec = 1 min).
- Draw and classify triangles, according to their properties; (e.g., right, scalene, obtuse, equilateral); identify and draw circles and parts of circles, describing the relationships between the various parts (e.g., central angle, arc, diameter).
- Identify shapes that have congruence, similarity, and/or symmetry of figures using a variety of methods including transformational motions (e.g., translation/slide, rotation/turn, reflection/flip, enlargement/reduction) and models, drawings, and measurement tools.
- Using a grid, identify coordinates for a given point or locate points of given coordinates in the first quadrant.
- Identify, describe, compare, and classify two- and three-dimensional figures by relevant properties including number of vertices (corners), edges, and shapes of faces; identify and predict the effects of combining, dividing, and changing shapes into other shapes.
- Identify, describe, define, and draw geometric figures including points, intersecting, perpendicular and parallel lines, line segments, rays, angles, and planes.

Data Analysis: Statistics and Probability (C4)

- Collect, organize, read, and interpret data using a variety of graphic representations including tables, line plots, stem-and-leaf plots, scatter plots, histograms; use data to draw and explain conclusions and predictions.
- Model and then compute measures of central tendency including mean, median, and mode.

MATHEMATICS ABILITIES

Conceptual Understanding (A1)

- Label, define, and compare/contrast concepts and translate from one mode of representation to another.
- Recognize and identify properties of a given concept, and use models, diagrams, and symbols to represent it.

Procedural Knowledge (A2)

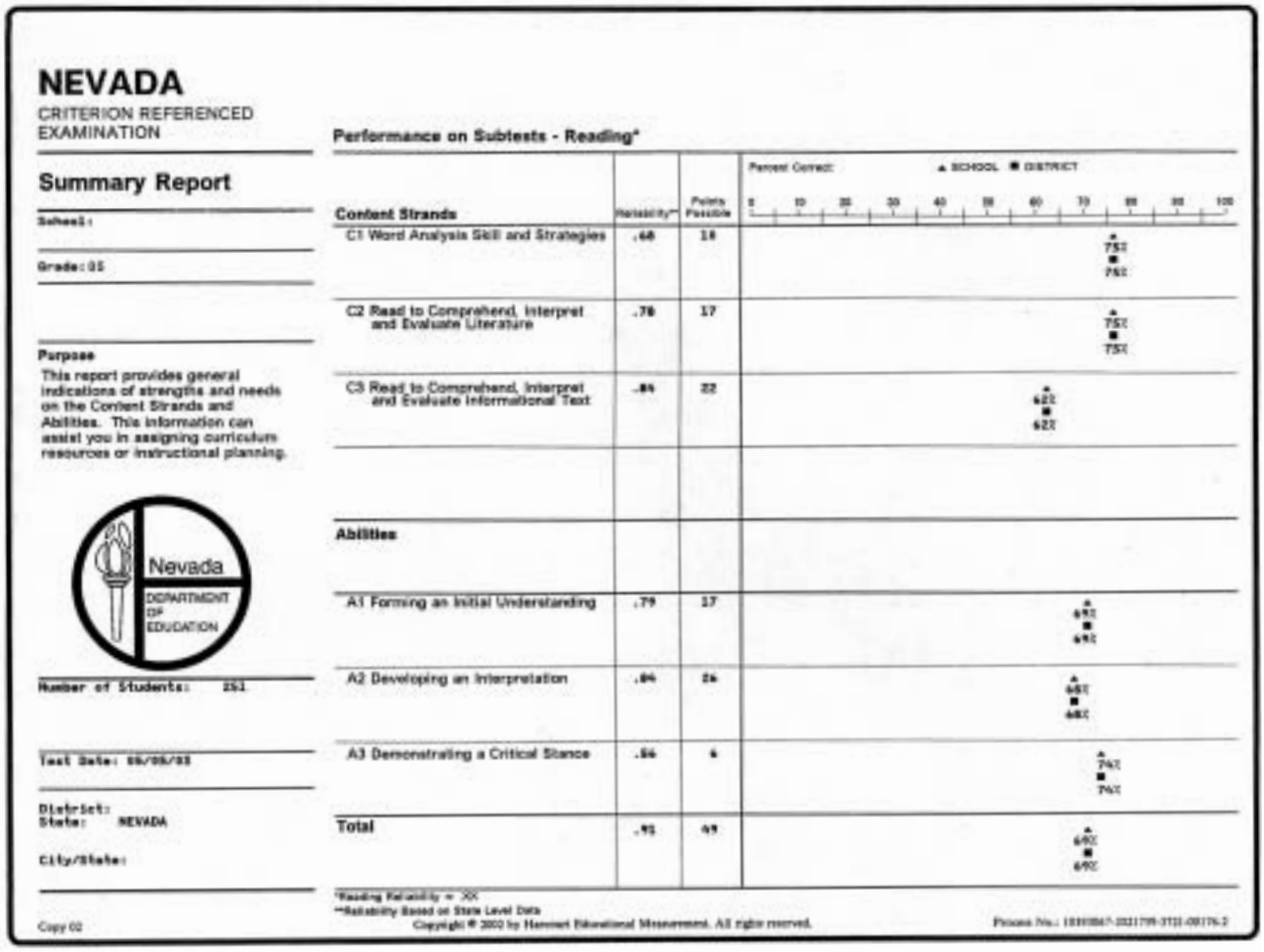
- Recognize when a procedure is appropriate, give reasons for steps in a procedure, and accurately execute procedures in a problem situation.
- Verify the results of procedures using analysis and/or models.
- Identify and/or demonstrate the appropriate use of tools (calculators, protractors, rulers, etc.).

Problem Solving (A3)

- Analyze situations to determine common properties and structures, recognize patterns, and form conjectures.
- Apply a variety of combinations of strategies to solve problems.
- Verify conclusions, judge the validity of conjectures, and construct valid arguments.

The school summary report (see Figure 6a and 6b) communicates similar information. The report conveys raw performance in terms of the school's average percent correct relative to each content standard and cognitive domain. Next to the "Number of Items" is the "Reliability Indicator" that refers to the extent to which test scores on items are consistent based on statistical analyses. The report also provides a standard-by-standard, domain-by-domain comparison between the school and the school district as well as a bar chart denoting a comparison between the school and the district in terms of pass rates. Disaggregated data on student performance by major subpopulations is also provided. This includes average scale score performances as well as pass rates by gender, major ethnic groups, students with disabilities, students with limited English proficiency, and students with low socio-economic status.

Figure 6a — School-Level Summary Score Report – Reading Grade 5



NEVADA

CRITERION REFERENCED EXAMINATION

Summary Report

School:

Grade: 05

Purpose

This report provides general indications of strengths and needs on the Content Strands and Abilities. This information can assist you in assigning curriculum resources or instructional planning.

Nevada Department of Education

Number of Students: 251

Test Date: 05/05/03

District:
State: NEVADA

City/State:

Copy 02

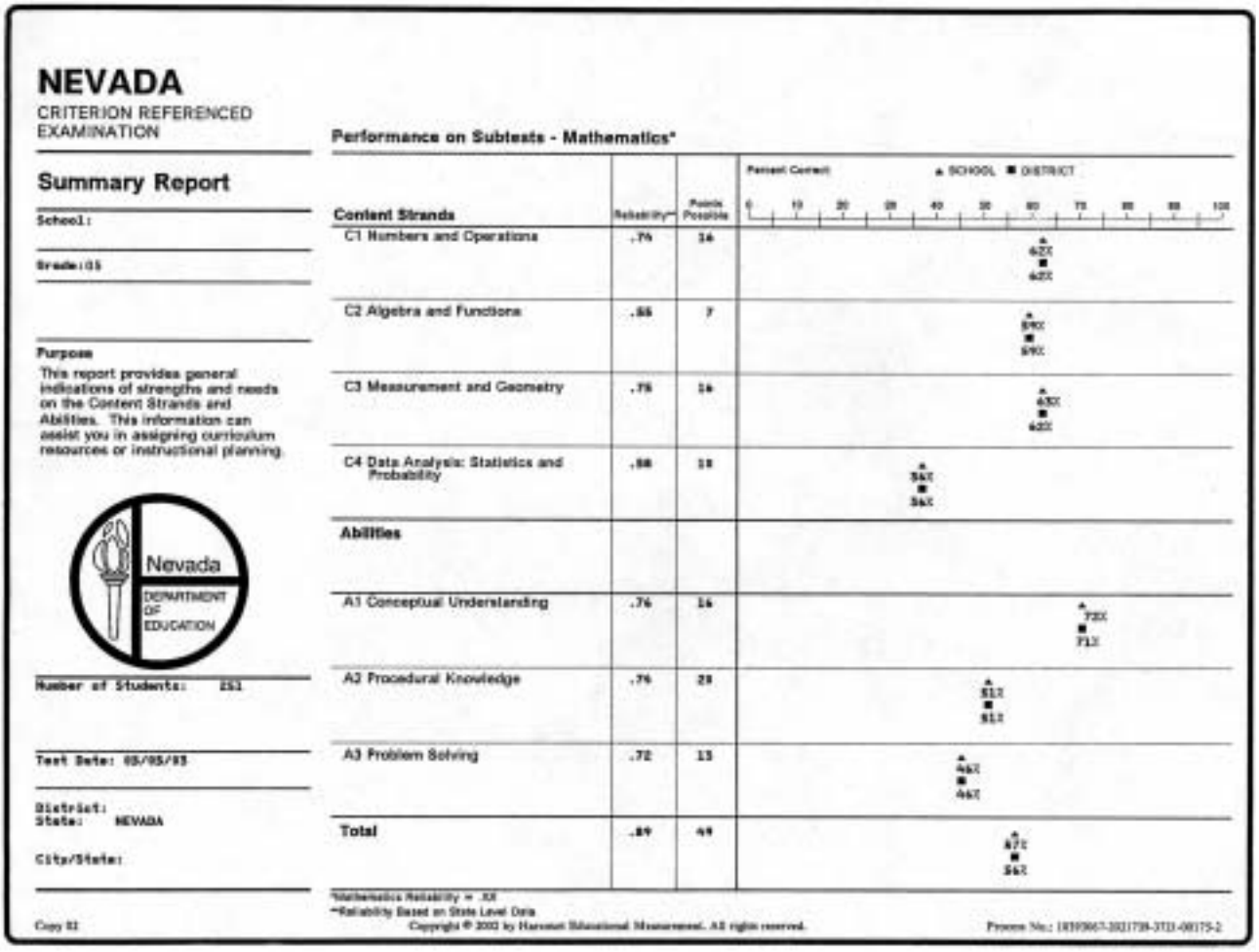
Performance on Subtests - Reading*

Content Strands	Reliability**	Points Possible	Percent Correct: ▲ SCHOOL ■ DISTRICT (0 10 20 30 40 50 60 70 80 90 100)
C1 Word Analysis Skill and Strategies	.68	18	▲ 75% ■ 75%
C2 Read to Comprehend, Interpret and Evaluate Literature	.78	17	▲ 75% ■ 75%
C3 Read to Comprehend, Interpret and Evaluate Informational Text	.84	22	▲ 62% ■ 62%
Abilities			
A1 Forming an Initial Understanding	.79	17	▲ 69% ■ 69%
A2 Developing an Interpretation	.84	26	▲ 68% ■ 68%
A3 Demonstrating a Critical Stance	.56	6	▲ 74% ■ 74%
Total	.91	49	▲ 69% ■ 69%

*Reading Reliability = .XX
**Reliability Based on State Level Data

Process No.: 1999867-2021799-3733-00176-2

Figure 6b— School-Level Summary Score Report – Mathematics Grade 5



NEVADA

CRITERION REFERENCED EXAMINATION

Summary Report

School:

Grade: 05

Purpose

This report provides general indications of strengths and needs on the Content Strands and Abilities. This information can assist you in assigning curriculum resources or instructional planning.

Nevada Department of Education

Number of Students: 251

Test Date: 05/05/03

District:
State: NEVADA

City/State:

Copy 01

Performance on Subtests - Mathematics*

Content Strands	Reliability**	Points Possible	Percent Correct ▲ SCHOOL ■ DISTRICT 0 10 20 30 40 50 60 70 80 90 100
C1 Numbers and Operations	.74	16	▲62% ■62%
C2 Algebra and Functions	.65	7	▲69% ■69%
C3 Measurement and Geometry	.75	16	▲63% ■63%
C4 Data Analysis: Statistics and Probability	.68	10	▲36% ■36%
Abilities			
A1 Conceptual Understanding	.74	16	▲72% ■71%
A2 Procedural Knowledge	.74	28	▲51% ■51%
A3 Problem Solving	.72	13	▲46% ■46%
Total	.89	49	▲47% ■54%

*Mathematics Reliability = .93
**Reliability Based on State Level Data

Process No.: 1839867-2021739-3721-00175-2


Vocabulary
Details
First Impression
Character
Plot

READING INTRODUCTION

All students must have the opportunities and resources to develop the language skills they need to pursue life's goals and to participate fully as informed, productive members of society.

— National English/Language Arts Standards
http://www.ncte.org/about/over/standards/110846.htm

The goals of English/Language Arts education in Nevada emphasize the importance of students becoming proficient readers and writers. As students learn literacy skills, they must understand and practice effective reading strategies for a variety of purposes in a range of genres. Students must read often, interpreting and evaluating a broad range of classic and contemporary literature. They should also be active, critical consumers of media and technology information. Students should know how to evaluate and summarize information and communicate their conclusions clearly to others. They must be able to develop, organize, and conventionally present their ideas logically and effectively in written and oral formats.

The Nevada English Language Arts Standards provide a comprehensive conceptual framework within which explicit content is identified in a K-12 sequence of study. The criterion-referenced test in reading is designed to align the assessment system with instruction.

Nevada's Content and Performance Standards in English Language Arts are composed of 11 standards, four of which are tested in the reading portion of the criterion-referenced tests at grade 5. Content Standards 1 through 4 deal with students' abilities to use word analysis, reading process, and comprehension skills. Each standard has performance indicators that target specific competencies within the standard. The following is a description of the standards and those performance indicators tested. Those tested at the state level are check marked.

Nevada English Language Arts Standards and Progress Indicators

Standard 1: Students know and use word analysis skills and strategies to comprehend new words encountered in text.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- ✔ Use knowledge of phonics, structural elements, grammar, and syntax to read and to determine the meaning of unfamiliar words in context.
- ✔ Identify and use the meanings of high-frequency Greek- and Latin-derived roots and affixes to determine the meanings of words.
- ✔ Find word origins and determine meanings of unknown words using dictionaries and glossaries.
- ✔ Use context clues such as restatement, definitions, and examples to determine the meaning of unknown words.

Standard 2: Students use reading process skills and strategies to build comprehension.

Grade 5 Progress Indicators

- Select and apply pre-reading strategies that enhance comprehension, such as making a plan for reading, accessing prior knowledge, choosing a graphic organizer, and selecting reading rate.
- Apply self-correcting strategies to gain meaning from text.
- ✔ Select and use a variety of skills and strategies during reading such as identifying main ideas, identifying fact and opinion or cause and effect, verifying predictions, summarizing, paraphrasing, and drawing conclusions to aid comprehension.
- Clarify understanding of text by note taking, outlining, completing a graphic organizer, summarizing, and writing a report.
- Adjust reading rate to suit reading purpose and difficulty of text.

Standard 3: Students read to comprehend, interpret, and evaluate literature from a variety of authors, cultures, and times.

Grade 5 Progress Indicators

- ✔ Distinguish main incidents of a plot that lead to the climax, and explain how the problem or conflict is resolved.
- ✔ Make inferences supported by the text about characters' traits and motivations and make predictions about conflicts and resolutions.
- Identify historical events as portrayed in literature.
- ✔ Compare stated and implied themes in a variety of works.
- ✔ Locate and interpret figurative language, including simile, metaphor, and personification in text.
- Describe how authors' writing styles influence reader response.
- Describe differences in purpose and structure among stories, plays, poetry, and nonfiction selections.

Standard 4: Students read to comprehend, interpret, and evaluate informational texts for specific purposes.

Grade 5 Progress Indicators

- ✔ Use knowledge of format, graphics, sequence, diagrams, illustrations, charts, and maps to comprehend text.
- Clarify and connect main ideas and concepts and identify their relationship to other sources and related topics.
- Read to evaluate new information and hypotheses by comparing them to known information and ideas.
- ✔ Draw conclusions and make inferences about text supported by textual evidence and experience.
- ✔ Identify authors' ideas and purposes in texts, including advertisements and public documents.
- Read and follow multi-step directions in order to perform procedures and complete tasks.

THE NEVADA CRITERION REFERENCED TESTS

The Nevada Criterion Referenced Tests (CRT) in reading are passage-based, that is, all items (questions) are connected to an extended piece of written text. Because reading passages form the basis for assessing reading comprehension, there are certain considerations that guide the selection of the texts, including genre, passage length, and readability.

In assessing reading, it is important to provide opportunities for students to respond to different types of reading materials for different purposes. Reading passages found in the CRT reading examination may be literary, informational, or functional text. Passage length will range from 500 to 690 words for grade 5. Poems may be shorter than the minimum number of words designated, and pairing of two short passages may occur. The pairing of passages provides opportunities to assess analysis skills and also supplies enough text from which to construct the desired number of items per passage.

Besides being familiar with a range of reading genres, the readability levels of the passages must be consistent with grade-level appropriateness as well as with the reading purpose. Readability levels are determined through many variables: format, typography, content, literacy form and style, vocabulary difficulty, sentence complexity, concept load or density, cohesiveness, etc. Readability formulas are run on each passage; however, teacher expertise is the final determinate of grade-level appropriateness.

Since previously published text is used for the passages on the test, some texts may not follow grammar or usage rules students are taught to use in their own writing. The passage must be printed exactly as it was published unless the copyright holder gives permission for changes to be made.

The following is a description of each type of passage found in the reading portion of the criterion-referenced tests.

Literary Text – is writing that is read for enjoyment, entertainment or inspiration. The text may include short stories, literary essays, poems, historical fiction, fables, folk tales, plays, or excerpts from novels. If excerpts are selected, they must have a discernable beginning, middle, and end. The passages should reflect a variety of themes appropriate for and interesting to students at the designated grade level.

Informational Text – is writing that is read for a purpose and is similar to what students see in textbooks every day. It is read in order to solve problems, raise questions, provide information, or present new ideas. Informational passages may be drawn from magazines, newspaper articles, diaries, editorials, essays, biographies, and autobiographies. These selections should have readily identifiable key concepts and relevant supporting details. Informational passages should include a variety of grade-appropriate information sources, both primary and secondary.

Functional Text – is writing that is encountered in everyday life both inside and outside of the classroom. It includes consumer materials, how-to instructions, advertisements, and tables and graphic presentations of text.

The items that are used to evaluate understanding of these passages fall into three Ability Levels (Cognitive Domains) that are reported on the reading assessments.

The following charts show the Content Clusters and Ability Levels (Cognitive Domains).

Content Clusters

C1 – Word Analysis and Skills (Standard 1)
C2 – Comprehend, Interpret, and Evaluate Literature (Standard 3)*
C3 – Comprehend, Interpret, and Evaluate Informational Texts (Standard 4)*

* While not reported separately, some items in C2 and C3 assess students' ability to use reading process strategies in the Standard 2 performance indicators.

Ability Levels (Cognitive Domains)

A1 – Form an Initial Understanding
A2 – Develop an Interpretation
A3 – Demonstrate a Critical Stance

Forming an Initial Understanding (A1)

Questions at this level assess the student's knowledge of the initial understanding of what is read. For A1 questions, the answers can be found directly in the test or as a simple statement of information found in the text. Some examples are:

- Which word has the same vowel sound as…?
- What event happened for the first time in…?
- Choose the correct list of materials needed to play…
- Which sentence is a fact?

Developing an Interpretation (A2)

Questions at this level assess the ability to extend initial understanding to develop a more complete understanding of what is read. This process may involve linking information across parts of a text as well as focusing on specific information. Questions that assess this aspect of reading include drawing inferences about the relationship of two pieces of information and providing evidence to determine the reason for an action. Some examples are:

- How did…feel about the story?
- What is an opinion?
- The directions say to…, so
- What is a simile?

Determining a Critical Stance (A3)

Questions at this level require students to stand apart from the text, consider the entire text objectively, and evaluate its quality and appropriateness. Examining text content and structure requires critically evaluating, comparing/contrasting, and understanding the effect of such features

as irony, humor, and organization. Some examples are:

- Another good title for this story is…
- The author of this passage would probably agree with
- What is the main idea of this passage?
- Which was the main event of this passage?

The matrix below explains the configuration of the reading examination at grade 5.

CRT Grade 5 Reading Examination Item Matrix

Content Cluster/ Ability Level (Cognitive Domain)	C1 Word Analysis and Skills (Standard 1)	C2 Comprehend Literature (Standards 2 & 3)*	C3 Comprehend Informational Text (Standards 2&4)*	Total Items	Percent
A1 Initial Understanding	8	4	8	20	37
A2 Interpretation	8	5	8	21	48
A3 Critical Stance	0	4**	4**	8	15
Total Items	16	13	20	49	
Percent	29	24	37		100

* Standard 2 (Reading process strategies) is assessed in Reporting Cluster 2 with Standard 3 (Comprehend…literature) and in Reporting Cluster C3 with Standard 4 (Comprehend…informational text), but no separate score is given for Standard 2.

** Indicates a constructed-response item.

Constructed-Response Items

Constructed-response items present students with a question or questions that require students to respond in written form. Typically items ask students to not only recall knowledge from a passage, but also demonstrate more complex cognitive behaviors such as organizing, summarizing, comparing, relating, analyzing, inferring, concluding, predicting, solving, and/or applying. A constructed-response item can appear in several different formats and reflect either the A2 or A3 Ability Level. An item may be specific in its request (e.g., "Describe three different ways that…") or more open-ended (e.g., "Describe different ways that…and explain why…").

Constructed-responses will have a set, which scaffolds the students' thinking, and directions for the task.

Students receive a score of 0-3 points on their answer, with 0 being the lowest and 3 being the highest. A score of 2 or 3 is deemed proficient. A student's score depends on how closely his or her answer matches the description in the item-specific rubric and the anchor papers for each constructed-response item.

For each constructed-response item, an item specific rubric is designed based on the general rubric. (See below for example.) Anchor papers, which are exemplary responses of typical student responses at each score point, are selected to guide the trained readers who score students' responses.

Score Point	Expectation
3	The response completely answers all parts of the question and displays thorough understanding of the skill(s) being tested. The response provides an answer that: • shows an accurate understanding of the text. • gives sufficient relevant details from the passage to support the answer.
2	The response partially, but adequately, answers the question and displays satisfactory understanding of the skill(s) being tested. The response provides an answer that: • shows a basic understanding of the text. • gives some relevant details from the passage to support the answer; however, it may give some details from the passage that do not support the answer.
1	The response demonstrates a limited understanding of the skill(s) being tested. The response provides an answer that: • indicates a lack of understanding of the text or of the intent of the question. • provides few, if any, relevant details from the passage to support the answer; however, it may give some unrelated details or inaccuracies about the passage.
0	The response demonstrates a lack of understanding of the skill(s) being tested. The response provides an answer that: • is unrelated to the question or repeats the question without adding anything to show understanding of the question or the passage. • is incorrect based on information in the passage.

Review Materials

Reporting Category: C1 – Word Analysis Skills and Strategies

Ability Level: A2 – Developing an Interpretation

Performance Indicator: Use context clues such as restatement, definitions, and examples to determine the meaning of unknown words.

Passage: *River Dance* (See page 29 in this guide to read the passage.)

Test Item:

In the fourth paragraph, what does the word gangly mean?

A droopy-tailed

B loud-sounding

C long-legged

D strange-acting

Correct Answer C: The sentences following the word "gangly" discuss how very tall the cranes are, and the text states: "Wow! That's the height of an average second-grader. The cranes step through the stubble on long, spindly legs."

Response A: This response is incorrect. Some students may select this response because the same paragraph states "their tufty tails droop."

Response B: This response is incorrect. Some students may choose this response because the passage tells how loud and noisy the cranes are.

Response D: This response is incorrect. Some students may choose this response because the passage suggests that the birds are strange-looking and the "very special dance" may be considered strange.

Reporting Category: C2 – Read to Comprehend, Interpret, and Evaluate Literature

Ability Level: A1 – Forming an Initial Understanding

Performance Indicator: Select and use a variety of skills and strategies during reading such as identifying fact and opinion or cause and effect, verifying predictions, summarizing, paraphrasing, drawing conclusion to aid in comprehension.

Passage: *River Dance* (See page 29 in this guide to read the passage.)

Test Item:

The sandhill cranes are dancing in order to

A gain strength for the rest of their long flight.

B celebrate their arrival in the Platte River valley.

C protect their nesting grounds from predators.

D pair up for practice before the mating season begins.

Correct Answer D: The passage says the cranes are dancing to pair up and the more serious mating dances will take place later on at the northern nesting grounds.

Response A: This response is incorrect. Some students may select this response because the passage states that the cranes stop in the Platte River valley to rest, regain energy, and refuel.

Response B: This response is incorrect. Some students may choose this response because the passage says that the cranes have already flown nonstop about six hundred miles which suggests that finally arriving at this destination would be a cause for celebration.

Response C: This response is incorrect. Some students may choose this response because the passage tells how the cranes roost in special places for safety from predators and that some of the cranes seem to act as "guard birds" at night.

Reporting Category: C2 – Read to Comprehend, Evaluate, and Interpret Literature

Ability Level: A2 – Developing an Interpretation

Performance Indicator: Locate and interpret figurative language, including simile, metaphor, and personification in text.

Passage: *River Dance* (See page 29 in this guide to read the passage.)

Test Item:

In paragraph 2, the author writes: "The High Plains of Eastern Colorado are still locked in winter." This means that

A it is colder in the High Plains than it has been in past years.

B the High Plains have snowy roads that are dangerous to drive on.

C it will be icy in the High Plains until spring break comes.

D the High Plains are continuing to experience cold weather.

Correct Answer D: The figurative language "…still locked in winter," means that the cold winter weather that has been going on for some time is still continuing in the region.

Response A: This response is incorrect. Some students may select this response because the passage describes the weather as extremely cold with swirls of snow, a 15-degree temperature outside, and blowing wind, followed by the comment, "Brrr!"

Response B: This response is incorrect. Some students may choose this response because the passage mentions the swirling snow and the fact that the family is driving; they may also assume that "locked in winter" means driving would be dangerous.

Response C: This response is incorrect. Some students may select this response because the passage mentions both spring break and the terribly icy, cold weather.

GRADE 5 READING

Reporting Category: C2 – Read to Comprehend, Evaluate, and Interpret Literature

Ability Level: A2 – Developing an Interpretation

Performance Indicator: Select and use a variety of skills and strategies during reading such as identifying fact and opinion or cause and effect, verifying predictions, summarizing, paraphrasing, and drawing conclusions to aid in comprehension.

Passage: *River Dance* (See page 29 in this guide to read the passage.)

Test Item:

Write your answer to Question 1 on page 2 in your Answer Booklet.

In the passage, the sandhill cranes stop in the Platte River valley of Nebraska while migrating from Texas to the north.

Using information from the passage, explain why cranes might not stop in the Platte River valley in the future.

Score Point	Expectation
3	Response completely and accurately explains why cranes might not stop in the Platte River valley in the future. The response includes relevant supporting details from the passage.
2	Response explains why cranes might not stop in the Platte River valley in the future. The response includes some relevant details from the passage, but it may contain a few inaccuracies.
1	Response attempts to explain why cranes might not stop in the Platte River valley in the future. The response may contain numerous inaccuracies or misunderstandings about the passage. Few, if any, relevant details from the passage are provided.
0	Response is totally inaccurate and/or irrelevant.

Sample Response for Each Score Point:

3 – In the future, the sandhill cranes may not stop in the Platte River valley because the valley will not be as suitable for them as it is now. The passage says that the sandhill cranes stop there now because there are still some bare sandbars and islands in the middle of the mile-wide river where the cranes can safely roost. It also says that the cranes need flooded meadows where they can find grubs and worms to eat. It also says that people are beginning to divert water from the river to water the crops on their farms. They have also built dams upstream from the valley. If they continue to divert more and more water and to build more dams, there will no longer be floods. The tall trees will grow on the sandbars and islands, and cranes will not want to be there.

2 – Sandhill cranes may not stop in the Platte River valley in the future because the valley may be different. Cranes stop there now because they can find food to eat and a place to rest. They eat grubs and worms. They like to rest in tall trees. If the cranes can't find enough food to eat, they will not want to stop there anymore. There may not be any tall trees so they won't have a place to rest if they stop there.

1 – Sandhill cranes may not stop in the Platte River valley in the future because it won't be a good place for them to stop anymore. It may be too flooded for them to find a place to roost or to find food to eat. Their nests might wash away in the floods. They will look for some other place to stop that has what they need.

0 – The Platte River valley is not north. The sandhill cranes do a funny dance that I would really like to see.

Reporting Category: C2 – Read to Comprehend, Interpret, and Evaluate Literature

Ability Level: A3 – Demonstrating a Critical Stance

Performance Indicator: Make inferences supported by the text about character traits and motivations, and make predictions about conflicts and resolutions.

Passage: *WHAT GOOD'S A THUMB?* (See page 32 in this guide to read the passage.)

Test Item:

The speaker in this poem can **best** be described as

A practical.

B worried.

C doubtful.

D generous.

Correct Answer A: The speaker lists "practical" uses for the thumb that help us do everyday tasks and offers "practical" advice on what to do when the thumb is sore; therefore, the speaker can be described as a "practical" person.

Response B: This response is incorrect. Some students may choose this response because the speaker talks about having a sore thumb and asking for help which will lead some students to assume that the speaker is "worried."

Response C: This response is incorrect. Some students may select this response because the speaker asks questions at the beginning of the poem. They may assume this means that the speaker is "doubtful" about something.

Response D: This response is incorrect. Some students may choose this response because the speaker mentions many uses of a thumb and suggests asking for help when a thumb is sore. The number of things the speaker mentions the thumb does may lead some students to assume that the speaker is "generous." Other students may wrongly associate the help as being performed by the speaker, making the speaker a "generous" person.

Reporting Category: C3 – Read to Comprehend, Interpret, and Evaluate Informational Text

Ability Level: A1 – Forming an Initial Understanding

Performance Indicator: Select and use a variety of skills and strategies during reading such as identifying fact and opinion or cause and effect, verifying predictions, summarizing, paraphrasing, drawing conclusion to aid in comprehension.

Passage: *Leaf and Seed Bugs* (See page 34 in this guide to read the passage.)

Test Item:

According to the directions, the scissors are used to poke holes in the body to attach the bug's

A wings.

B head.

C legs.

D eyes.

Correct Answer C: In Step 4 of the directions, the reader is told to use the scissors to poke holes in the body parts to attach the legs.

Response A: This response is incorrect. Some students may choose this response because they remember that the directions mention attaching wings to the body, but they may not go back to the passage to check whether or not the wings are attached by poking holes in the body.

Response B: This response is incorrect. Some students may select this response because they remember that the directions mention attaching a head to the body, but they may not go back to the passage to check whether or not the head is attached by poking holes in the body.

Response D: This response is incorrect. Some students may select this response because they remember that the directions mention attaching eyes to the bug, but they may not remember that the eyes are attached to the head and they will not go back to the passage to check.

Reporting Category: C3 – Read to Comprehend, Interpret, and Evaluate Informational Text

Ability Level: A2 – Developing an Interpretation

Performance Indicator: Draw conclusions from and make inferences about text supported by textual evidence and experience.

Passage: *When Money Grew on Trees* (See page 36 in this guide to read the passage.)

Test Item:

Based on information in the passage, which of the following did the Spaniards do in Mexico?

A They conquered the Aztecs and became harsh rulers.

B They drank cacahuatl with red dye in it.

C They helped the poor Aztecs become wealthy.

D They suffered a great deal.

Correct Answer A: The passage states that the invading Spaniards forced the native people to grow more and more cacao beans for the royal warehouses, even though the land and the people suffered greatly. Therefore it can be concluded that the Spaniards conquered the Aztecs and were harsh rulers.

Response B: This response is incorrect. Some students may choose this response because the passage mentions that the Aztecs sometimes put red dye in the cacahuatl when they made it to drink. These students will be confused about what the Aztecs did versus what the Spaniards did.

Response C: This response is incorrect. Some students may select this response because they will have difficulty separating the ideas in the passage about the Aztec versus the Spaniards. The passage mentions that the Spaniards were "…dreaming of riches…"

Response D: This response is incorrect. Some students may choose this response because they will be confused about who the conquerors were and who the conquered (native people) were. The passage mentions that the native people suffered greatly.

Reporting Category: C3 – Read to Comprehend, Interpret, and Evaluate Informational Text

Ability Level: A3 – Demonstrating a Critical Stance

Performance Indicator: Select and use a variety of skills and strategies during reading such as identifying fact and opinion or cause and effect, verifying predictions, summarizing, paraphrasing, or drawing conclusions to comprehend text.

Passage: *When Money Grew on Trees* (See page 36 in this guide to read the passage.)

Test Item:

Which sentence from the passage is an **opinion**?

A Europeans first saw cacao beans in 1502, when Christopher Columbus and his son Ferdinand stumbled across them.

B They happily paid large sums of money for very small crates of cacao beans.

C Spanish chocolate was made with cacao beans, chili peppers, vanilla, and water.

D By 500 B.C., people in Mexico and Central America were growing these cacao trees in special orchards.

Correct Answer B: The response expresses an opinion because it is the author's belief that the Europeans "happily" paid for the beans. Others might say they paid because they had to but they were not happy about it.

Responses A, C, D: These responses are incorrect. The statements are facts because they can be proven.

River Dance

by Ann Cooper

Birds that migrate over the central United States stop to rest on rivers and pothole lakes throughout the prairie region. Because many rivers have been dammed and many lakes have been drained for agriculture, those that remain have become a critical habitat for these feathered travelers.

Photo © Michael Gore; Frank Lane Picture Agency

The High Plains of Eastern Colorado are still locked in winter. It is mid-March, spring break, but it doesn't feel like spring. Swirls of snow from last week's storm fringe fence lines and gulches. Weeds and grasses along the highway are tawny yellow and dead. Away to the north, all we can see of the South Platte River is a snaking line of leafless cottonwoods. Outside, the temperature is about fifteen degrees and the wind is blowing. Brrrr! Some people we know are heading west to the mountains to ski over spring break. Others are heading to warm places. We are zooming east on the interstate on our way to Kearney, Nebraska, to watch a very special dance.

The dancers are birds, sandhill cranes, thousands and thousands of them. In early spring they begin to migrate north to their nesting grounds. By the time they've flown nonstop about six hundred miles from west Texas or New Mexico, they're ready for a rest. Every year they stop along the Platte River valley. They choose places from Overton, west of Kearney, all the way to Grand Island. Here they spend a few weeks regaining energy and mingling with other cranes. At night they roost on sandbars in the river for safety. By day they eat. They need to refuel for the rest of their long journey. Sometimes they dance.

We arrive in the Kearney area in late afternoon. We leave the interstate to grab a quick snack at the gas station. Then we drive the back roads. Soon, among the cornstalks in a wintry-looking field, we see about fifty cranes. They are very large, gangly birds! Our field guide says greater sandhill cranes can be fifty inches tall. Wow! That's the height of an average second-grader. The cranes step through the stubble on long, spindly legs. Their feathers are grayish, some tinged with russet, and their tufty tails droop. They remind me of ostriches. Above their long beaks are bright red crown patches. The patches seem to glow in the late-afternoon slanted light. Through our binoculars, we can see that the patches are not feathery: they are bare skin!

READING SAMPLE TEST PASSAGE

We watch from the car. We don't want to disturb the cranes. This is their place. They act fidgety and they're quite noisy. Some are eating, gleaning leftover grain. Others are hustling and crowding each other. One leaps into the air, flapping its wings, its spindly legs dangling. Then it lands again. Now two are leaping and flapping together. The excitement seems to be catching. Soon, more cranes are leaping and landing, flapping and squawking. It's quite a dance! Actually, it's only practice. The males and females are pairing up. They are jittery with spring fever. The really serious mating dances get going later, on the nesting grounds in the north. But this dance we are watching is wild and crazy enough.

As dusk falls, the cranes leave the field to join other flocks overhead. They mill around. It looks as if they are trying to decide something. After a while they all fly off toward the river. And then it's dark.

Next morning, way before dawn, we bundle up to go and see the cranes at their nighttime roost. The chill cuts through all our layers of clothing. I have to scrunch my fingers inside my mittens and stick my hands deep in my pockets. My breath feels prickly and freezes in my nose. We hike to the river and out across it along an old railroad bridge. We can't use a light and we can't talk. We mustn't disturb the roosting birds. They roost on the smooth sandbars out in the river, but we can't see anything yet. It's pitch black. Every so often a spooky warbling sound echoes from the river. Before we can see the slightest hint of light in the eastern sky, the cranes begin to stir. We stir, too. We jump up and down on the spot, trying to warm our toes without making a noise. It is so cold that our breath huffs out like dragon breath. In the half-light we can see that the cranes are fussing now, fluffing up their feathers, preening, and drinking, their long beaks ladling up water, pointing skyward as the drink trickles down their skinny throats.

The noise and restlessness increase. Groups of cranes leap up from the sandbars and circle. Their weird gargling *garroooooooo* sounds are unearthly and spine-chilling. We shiver with nice fright as well as cold. More cranes join the ones flying until the sky seems full of huge wings and straggly, "undercarriage" legs. Then, as if they shared one brain, they flap away toward the flooded meadows.

A crane expert tells us there is a famous saying about the Platte River, that it is "mile wide and an inch deep, too thick to drink and too thin to plow." It does look brownish and thick-muddy. And it is quite wide where we walk. That's why the cranes like it here. The sandy islands are good roosts, safe from predators—especially since some of the cranes seem to act as "guard birds" all night. The expert says that long ago the river was wider than it is now. It used to flood often, washing away tree seedlings whose roots were trying to get a hold on the sandbars in the river channels. Now, people divert water from the river for farming. There are dams upstream. Without floods to wash away seedlings, tall willows and cottonwoods cover some islands. These places are no longer good crane habitat. The expert tells us cranes need shallow channels, bare sandbars and islands, and flooded meadows, where they can pick and peck to find worms and grubs. Most of all, the cranes need there to be enough water flowing to keep the Platte River a mile wide. A single, deep channel without sandbars is of no use to them.

It's light now, and all the cranes have left the sandbar roost. We drive the back roads some more, wanting to see the cranes dance again. By noon, it is even colder. An icy fog closes in and the snow begins to fall. We head home toward Denver, not wanting to be caught in a blizzard. Driving into the swirl of snow, we think about the cranes. We wonder how they'll do on their long, tough journey north through the still-wintry land ahead. We're glad they take their spring break in the Platte River valley, in areas set aside for them. Most of all, we're glad we got to see their most amazing river dance.

Previously appeared in *Stories from Where We Live: The Great North American Prairie,* ed. Sara Antoine (Milkweed Editions: Minneapolis, 2001.

1 In paragraph 2, the author writes, "Away to the north, all we can see of the South Platte River is a snaking line of leafless cottonwoods." The author uses these words to show that the line of trees

A has snakes crawling all through the branches of the trees.

B looks like a snake's body winding back and forth as it crawls.

C is long and thin like a snake's body when it is stretched out.

D appears to be the color of a snake since the trees have no leaves.

2 In which book would this passage most likely be found?

A *Legends and Tales of the Central United States*

B *How to Attract Migrating Birds to Your Yard*

C *Facts about Rare and Endangered Birds*

D *Unusual Vacation Experiences for Bird Lovers*

3 In paragraph 6 the author writes, "It is so cold that our breath huffs out like dragon breath." This means that

A their breath was noisy and could be heard a long way.

B their warm breath felt like fire when they breathed.

C they had to take quick, deep breaths of cold air.

D they could see their breath in the cold air.

4 In the passage, the word stubble means

A large sandhill crane nests.

B short, dry corn stalks.

C growing weeds and grasses.

D soft, white snow drifts.

5 This passage is mainly about

A the favorite foods of sandhill cranes.

B a family observing sandhill cranes in Nebraska.

C the nesting ground of sandhill cranes.

D some sandhill cranes flying from Texas to Nebraska.

Write your answer to Question 6 on page 3 in your Answer Booklet.

6 The passage "River Dance" tells about a special dance that sandhill cranes do.

Using details from the passage, **describe** in your own words the dance that the cranes do and **explain** why they do it.

What Good's a Thumb?

(Passage unavailable — Web publishing rights denied.
Please refer to printed review guide.)

7 Why does the author of the poem capitalize the letters in the word "AH-CHOO"?

A to show that it is a funny word

B to stress the loud sound a sneeze makes

C to show how good it feels to sneeze

D to show that the person may have a bad cold

8 The author suggests that a person with a sore thumb should

A use only one hand.

B just ignore the pain.

C get help from someone.

D do nothing at all.

9 Based on the poem, why would a person give the "thumbs up" sign?

A to send a glad message

B to make a sore thumb feel better

C to warn others about an upcoming sneeze

D to signal that help is needed

10 This poem is mainly about

A why cutting a steak is dangerous to your thumb.

B how to get people to do things for you.

C what to do if you need advice.

D how necessary a thumb is to you.

11 In stanza 5 of the poem, the author writes, "…you'll have to let her." The author means that you will have to let your mom

A help you find your sweater.

B sew on a button.

C hold a tissue to your nose.

D help you finish dressing.

Leaf and Seed Bugs

(Passage unavailable — Web publishing rights denied.
Please refer to printed review guide.)

12 This passage is mainly about

A observing.

B finding.

C creating.

D painting.

13 According to the passage, which of these should you do *first*?

A Glue the main parts of the bug together.

B Choose materials and arrange them to look like a bug.

C Poke holes in the body parts for the straw legs.

D Glue leaves onto the body to look like wings.

14 What is another good name for this passage?

A "Bugs of the World"

B "A Walk in the Woods"

C "Leaf and Seed Collections"

D "Odd Insect Originals"

15 This passage can be described as

A the rules for a contest.

B a shopping list.

C an advertisement.

D a set of instructions.

16 In the first sentence of the passage, the word incredible means

A amazing.

B ancient.

C familiar.

D common.

When Money Grew on Trees

(Passage unavailable — Web publishing rights denied.
Please refer to printed review guide.)

17 Before the Spaniards came, the Aztecs gave their rulers many cacao beans to purchase

A cacahuatl to drink.

B coins to carry.

C cacao trees for their orchards.

D protection for their families.

18 The author included the parts in the margins labeled "Note:" to help the reader

A know the meaning of difficult words and read the passage more slowly.

B pronounce words correctly and understand the passage better.

C see how the words are spelled and want to read the passage again.

D find words that are unusual and skip some parts of the passage.

19 Wealthy Europeans craved the expensive drink "chocolate" because they

A had never seen it before.

B were able to use it as money.

C enjoyed the taste of it.

D liked the color of it.

20 Based on the passage, which of these is not an ingredient that the Europeans added to chocolate?

A nutmeg

B milk

C almonds

D mint

21 The passage says that money still grows on cacao trees today because

A candy companies sell a lot of chocolate.

B cacao trees can grow everywhere.

C the leaves of the cacao tree sparkle like coins.

D cacao beans can be used to buy chocolate.

22 Which other word in the next-to-last paragraph means the same as the word currency?

A beans

B food

C coins

D drink

Write your answer to Question 23 on page 4 in your Answer Booklet.

23 Using at least four details from the passage, explain how the use of cacao beans has changed over time.

Rubric for Question 6 (River Dance):

Score Point	Expectation
3	Response completely and accurately describes the special dance the sandhill cranes do and thoroughly explains why they do this dance. The response includes sufficient and relevant details from the article.
2	Response describes the special dance the sandhill cranes do, and explains why they do the dance. The response includes some relevant details from the passage, but it may contain a few inaccuracies.
1	Response minimally describes the special dance the sandhill cranes do and/or gives some explanation of why they do the dance. The response is sparse and may contain numerous inaccuracies or misunderstandings about the passage. Few relevant details from the passage are provided.
0	Response is totally inaccurate and/or irrelevant, or there is no response.

Sample Response for Each Score Point:

3 – When the sandhill cranes are getting ready to do their special dance, some of them begin hustling around and crowding each other. Then just one or two cranes leap into the air and flap their wings. Soon many more cranes are jumping and flapping and landing again and making strange squawking sounds.

The cranes are nervous from spring fever and they do this dance to begin pairing up for mating. They are beginning to choose their mates and will finish dancing and pairing off when they complete their migration to the north.

2 – The sandhill cranes dance by jumping into the air and flapping their wings. They also squawk while they are doing it. They do it many times.

The cranes do this dance to pair up with each other and so they can fly north. Then they will dance again.

1 – The dance the cranes do makes them look crazy. They jump up and down and try to fly.

0 – The cranes dance because they are hurt. The dance shows how hurt they are.

READING SAMPLE TEST ANSWER KEY

Item Number	Reporting Category	Ability Level	Answer Key	Item Number	Reporting Category	Ability Level	Answer Key
1	C2	A2	B	13	C3	A1	B
2	C2	A3	D	14	C3	A1	D
3	C2	A2	D	15	C3	A2	D
4	C1	A2	B	16	C1	A2	A
5	C2	A2	B	17	C3	A3	D
6	C2	A2	CR*	18	C3	A3	B
7	C2	A2	B	19	C3	A2	C
8	C2	A1	C	20	C3	A1	D
9	C2	A2	A	21	C3	A2	A
10	C2	A2	D	22	C1	A1	C
11	C2	A2	D	23	C3	A2	CR*
12	C3	A2	C				

* Indicates a constructed-response item. See the following pages for rubrics and sample responses.

Rubric for Question 23 (When Money Grew on Trees):

Score Point	Expectation
3	Response thoroughly and accurately describes how the use of cacao beans has changed over time and is supported by sufficient and relevant information and details from the passage.
2	Response partially describes how the use of cacao beans has changed over time and is supported by some details from the passage. Response may contain some inaccuracies or misunderstandings from the passage.
1	Response is a minimal description of how the use of cacao beans has changed over time. Response may contain numerous inaccuracies or misunderstanding about the passage. Few details from the passage are provided.
0	Response is totally inaccurate and/or irrelevant, or there is no response.

Sample Response for Each Score Point:

3 – Many years ago, people who lived in Central America ate cacao beans. At that time the beans were only used as food. The beans became more and more valuable, and the Aztec people in Mexico started using the beans for money. They also ate the beans and began to make a drink called cacahuatl out of them, so the beans were being used for both food and money.

Many years later, when Cortés invaded Mexico, he saw that the beans were being used for money. He made the people grow many cacao trees and give him the beans so he could be rich. The Aztecs still drank cacahuatl, but the Spaniards didn't. Later, the Spaniards added sugar and other things to it and made chocolate, so the beans were still being used for both food and money. When the Spaniards in Mexico sent some of the beans to Spain, the Europeans added more things to the chocolate to make it taste better. The beans were only used as food in Europe, but they were still used as both food and money in America. Finally the Spanish Americans stopped using the beans for money also. Then the beans were used only as a food, and not as money, everywhere in the world.

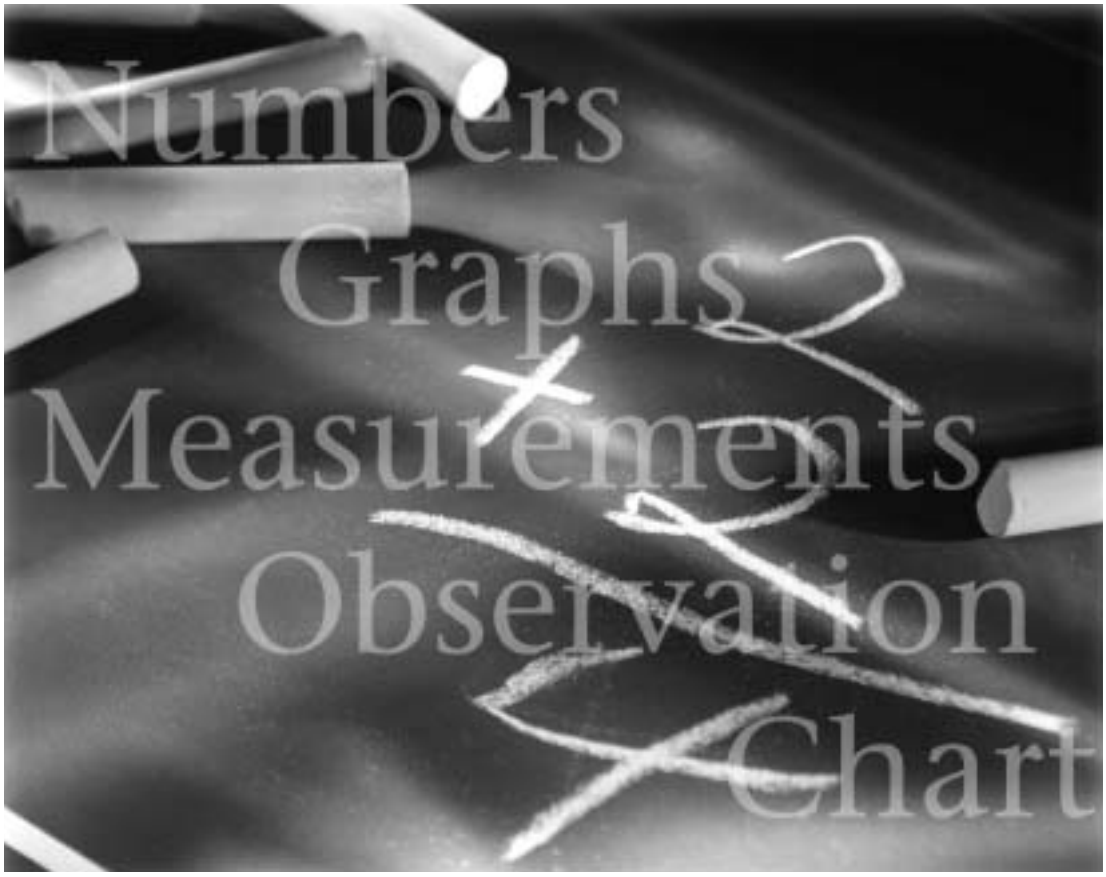
2 – A long time ago people lived in forests in Central America and ate the cacao beans they found on trees. Then the beans started being used for money because they were worth more, and the Aztec rulers collected as many as they could. They started to buy stuff with the beans, so the beans became money to most people. Some people made a drink called cacahuatl. It didn't taste very good, but the people who drank it wanted the beans to be used mostly for food.

When Cortés came to Mexico, he conquered it. Since the beans were used for money, he wanted everybody to grow beans and give them to him. He wanted to be rich and to use them as money because he didn't like the taste of cacahuatl. Then the Spaniards put other things in the cacahuatl to make chocolate and used it as food too. When they sent some beans to Europe, those people really liked the chocolate. They never used the cacao beans as money. Then the Aztecs finally stopped using the beans as money and only used them as food.

1 – The people who found the first cacao beans ate them. Other people used the beans to buy rabbits. When the people made cacahuatl out of the beans it tasted bad, but they had to drink it anyway. So it was their food.

When Cortés came, he collected houses full of cacao beans so he was rich. Then he made chocolate and liked that. He sent some chocolate to his friends, and they liked it too. Nobody used it for money anymore because it tasted good.

0 – Cacao beans tasted bad. My mom never has any and that is good. But chocolate is good, and my mom gives it to us. How could anybody think chocolate is money? That is silly.


Numbers
Graphs
Measurements
Observation
Chart

MATHEMATICS INTRODUCTION

Students have different abilities, needs, and interests. Yet everyone needs to be able to use mathematics in his or her personal life, in the workplace, and in further study. All students deserve an opportunity to understand the power and beauty of mathematics. Students need to learn a new set of mathematics basics that enable them to compute fluently and to solve problems creatively and resourcefully.

— National Council of Teachers of Mathematics
http://www.nctm.org/standards/overview.htm

Comprehensive mathematical knowledge is essential for success in today's world. Society needs individuals who have sound estimation skills and number and spatial sense, who are competent using and interpreting data, and who can use appropriate technology resources to solve problems and make informed decisions. These skills are essential if students are to become successful citizens, life-long learners, and competitive workers in a global marketplace.

The goals of mathematics education in Nevada include the following:

- All students will have knowledge of basic mathematical facts and relationships and the ability to perform computations.
- All students will have the ability to make sound estimations and to make sense of number relationships.
- All students will have the ability to read, interpret, and create graphs, tables, and charts.
- All students will have the ability to make geometric observations, measurements, and constructions.
- All students will have the ability to understand the effective, appropriate, and efficient use of models and mathematical tools, including calculators and computer technology.

The Nevada Mathematics Standards provide the framework for a comprehensive K-12 mathematics program and are intended to guide curriculum, instruction, and assessment, as well as other policies and practices that affect student learning. The standards serve as a foundation for teachers and curriculum specialists as they create curriculum and adopt teaching practices relevant to the needs, strengths, and diversity of Nevada's students and communities. The standards also provide clear direction for meaningful pre-service and in-service professional development. In essence, the standards help Nevada's school districts build cohesive and comprehensive systems for ensuring that all students achieve at high levels.

On the following pages are the five content strands (Standards 1.0-5.0) and four process strands (Standards 6.0-9.0) in the Nevada Mathematics Standards. The process strands are carefully integrated within the content standards to emphasize their interconnectedness. This integration is meant to emphasize the importance of teaching mathematics within the context of an application so students will not only know important skills and content but also how to use their knowledge and skills to reason and solve problems. Listed below the five content strands are the performance indicators. A check mark indicates a performance indicator is assessed in the mathematics portion of the criterion referenced tests at grade 5. The performance indicators for the process strands are also assessed; however, they are not reported separately.

Nevada Mathematics Standards and Progress Indicators

Standard 1: *Numbers, Number Sense, and Computation*
Students will develop their ability to solve problems, communicate, reason, and make connections within and beyond the field of mathematics. Students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms. They will determine the reasonableness of answers and the accuracy of solutions.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- ✔ Use and apply multiplication and corresponding division facts through 12's.
- ✔ Generate and solve addition, subtraction, multiplication, and division problems using whole numbers in practical situations.
- ✔ Use order of operations to solve problems.
- ✔ Add and subtract decimals; multiply and divide decimals by whole numbers in problems representing practical situations.
- ✔ Multiply and divide multi-digit numbers by 2-digit numbers, including strategies for powers of 10.
- • Compare and order negative numbers within the context of everyday happenings (e.g., temperature) and plot those numbers on a number line.
- • When rounding, identify which place value will be most helpful in estimating an answer and determine the reasonableness of the answer.
- ✔ Use and identify place value.
- ✔ Use models and drawings to identify, compare, add, and subtract fractions with like denominators and to add and subtract decimals; use both to solve problems.

Standard 2: *Patterns, Functions, and Algebra*
Students will develop their ability to solve problems, communicate, reason, and make connections within and beyond the field of mathematics. Students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- • Identify, describe, and explain patterns and relationships in the number system (e.g., formed by triangular numbers, perfect squares, arithmetic and geometric sequences) using concrete materials, paper and pencil, and calculators.
- ✔ Using whole numbers as a replacement set, find possible solutions to such inequalities as $8 + 4 > n$.
- ✔ Use variables in open sentences and to describe simple functions and relationships.
- ✔ Generate number sequences given the first term and any basic computation rule of add 6, 10, 16, 22, 28, …).
- • Solve simple equations using a variety of methods (e.g., inverse operations, mental math, and estimate and verify).

Standard 3: *Measurement*
Students will develop their ability to solve problems, communicate, reason and make connections within and beyond the field of mathematics. Students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- ✔ Estimate measures of length, volume, capacity, quantity, and weight, communicating degree of accuracy needed and when a more precise measure is required.
- ✔ Determine totals and change due for monetary amounts in problem-solving situations.
- ✔ Communicate the difference between perimeter and area.
- ✔ Identify equivalent periods of time, including relationships between and among seconds, minutes, hours, days, months, and years (e.g., 60 sec = 1 min).

Standard 4: *Spatial Relationships and Geometry*
Students will develop their ability to solve problems, communicate, and make connections within and beyond the field of mathematics. Students will identify, represent, verify, and apply spatial relationships and geometric properties.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- ✔ Draw and classify triangles, according to their properties; (e.g., right, scalene, obtuse, equilateral); identify and draw circles and parts of circles, describing the relationships between the various parts (e.g., central angle, arc, diameter).
- ✔ Identify shapes that have congruence, similarity, and/or symmetry of figures using a variety of methods including transformational motions (e.g., translation/slide, rotation/turn, reflection/flip, enlargement/reduction) and models, drawings, and measurement tools.
- ✔ Using a grid, identify coordinates for a given point or locate points of given coordinates in the first quadrant.
- ✔ Identify, describe, compare, and classify two- and three- dimensional figures by relevant properties including number of vertices (corners), edges, and shapes of faces; identify and predict the effects of combining, dividing, and changing shapes into other shapes.
- ✔ Identify, describe, define, and draw geometric figures including points, intersecting, perpendicular and parallel lines, line segments, rays, angles, and planes.

Standard 5: *Data Analysis*
Students will develop their ability to solve problems, communicate, reason, and make connections within and beyond the field of mathematics. They will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- ✔ Collect, organize, read, and interpret data using a variety of graphic representations including tables, line plots, stem-and-leaf plots, scatter plots, histograms; use data to draw and explain conclusions and predictions.
- ✔ Model and then compute measures of central tendency including mean, median, and mode.
- • Describe the limitations of various graph formats; select an appropriate type of graph to accurately represent the data and justify the selection.

THE NEVADA CRITERION REFERENCED TESTS

The Nevada Criterion Referenced Tests (CRT) in mathematics are designed to assess students' proficiency with respect to the 1998 Nevada K-12 Standards for Mathematics Education. A framework reference and an item specification matrix are used to guide the development of the Nevada CRT assessments. The framework and matrix are based on the commonality of the content and goals of the Nevada K-12 Standards for Mathematics Education, the National Assessment of Educational Progress (NAEP), and the National Council of Teachers of Mathematics (NCTM) Curriculum and Evaluation Standards for Mathematics. The Nevada CRT framework document is available for review on the Nevada Department of Education website at http://www.nde.state.nv.us

The CRT Framework calls for assessment items in four mathematics content clusters based on the three cognitive ability domains suggested by the NAEP assessment framework (conceptual understanding, procedural knowledge, and problem-solving skills) and the priorities set forth in the Nevada K-12 Standards for Mathematics Education.

The following shows the Ability Levels (Cognitive Domains) and Content Clusters that are reported on the mathematics assessments.

Ability Levels (Cognitive Domains)

A1 – Conceptual Understanding
A2 – Procedures
A3 – Problem Solving

Content Clusters

C1 – Numbers and Operations (Standard 1)
C2 – Algebra and Functions (Standard 2)
C3 – Measurement and Geometry (Standards 3 & 4)*
C4 – Data Analysis, Statistics and Probability (Standard 5)

*Approximately half of the items in Content Cluster 3 (C3) are from Standard 3 (Measurement) and the other half are from Standard 4 (Geometry).

To demonstrate conceptual understanding (A1), students should show that they are able to:

- Recognize, label, and generate examples and/or non-examples of concepts.
- Use and interrelate models, diagrams, manipulatives, and varied representations of mathematical concepts.
- Use and apply mathematical facts and definitions.
- Identify and apply principles (e.g., provide and recognize valid statements generalizing relationships among concepts in conditional form).
- Compare, contrast, and integrate related concepts and principles to the nature of the concepts and principles.
- Recognize, interpret, and apply the signs, symbols, and terms used to represent concepts.
- Interpret assumptions and relations involving concepts in mathematical settings.

To demonstrate procedural knowledge (A2), students should show that they are able to:

- Select and appropriately apply correct procedures.
- Verify or justify the correctness of a procedure using concrete models or symbolic methods.
- Extend or modify procedures to deal with factors inherent in problem settings.
- Apply numerical algorithms appropriately to specific mathematical situations or settings.
- Perform non-computational functions such as rounding and ordering.
- Describe why a particular procedure will give a correct answer for a problem in a specific context or defined situation.

To demonstrate problem-solving skills (A3), students should show that they are able to:

- Correctly apply their accumulated knowledge of Mathematics in new situations.
- Recognize and formulate problems.
- Determine the efficacy and relevance of data or information in problem-solving situations.
- Use combinations of strategies, data, models, and procedures to answer questions.
- Use reasoning in new settings.
- Judge the reasonableness and correctness of solutions.

The matrix that follows explains the configuration of the mathematics examination at grade 5.

CRT Grade 5 Mathematics Examination Item Matrix

Content Cluster/ Ability Level (Cognitive Domain)	C1 Numbers and Operations (Standard 1)	C2 Algebra and Functions (Standard 2)	C3 Measurement and Geometry (Standards 3&4)*	C4 Data Analysis: Statistics & Probability (Standard 5)	Total Items	Percent
A1 Conceptual Understanding	5	4	5	4	18	40
A2 Procedures	4	2	3	2	11	24
A3 Problem Solving	4**	3	5	4**	16	36
Total Items	13	9	13	10	45	
Percent	29	20	29	22		100

* Approximately half of the items in content Cluster 3 (C3) are from Standard 3 (Measurement) and the other half are from Standard 4 (Geometry).

** Indicates a constructed-response item.

Constructed-Response Items

Constructed-response items present students with a question or questions that require students to respond in written form. Typically items ask students to not only recall knowledge, but also demonstrate more complex cognitive behaviors such as organizing, summarizing, comparing, relating, analyzing, inferring, concluding, predicting, solving, and/or applying. A constructed-response item can appear in several different formats and reflect either the A2 or A3 Ability Level. An item may be specific in its request or more open-ended.

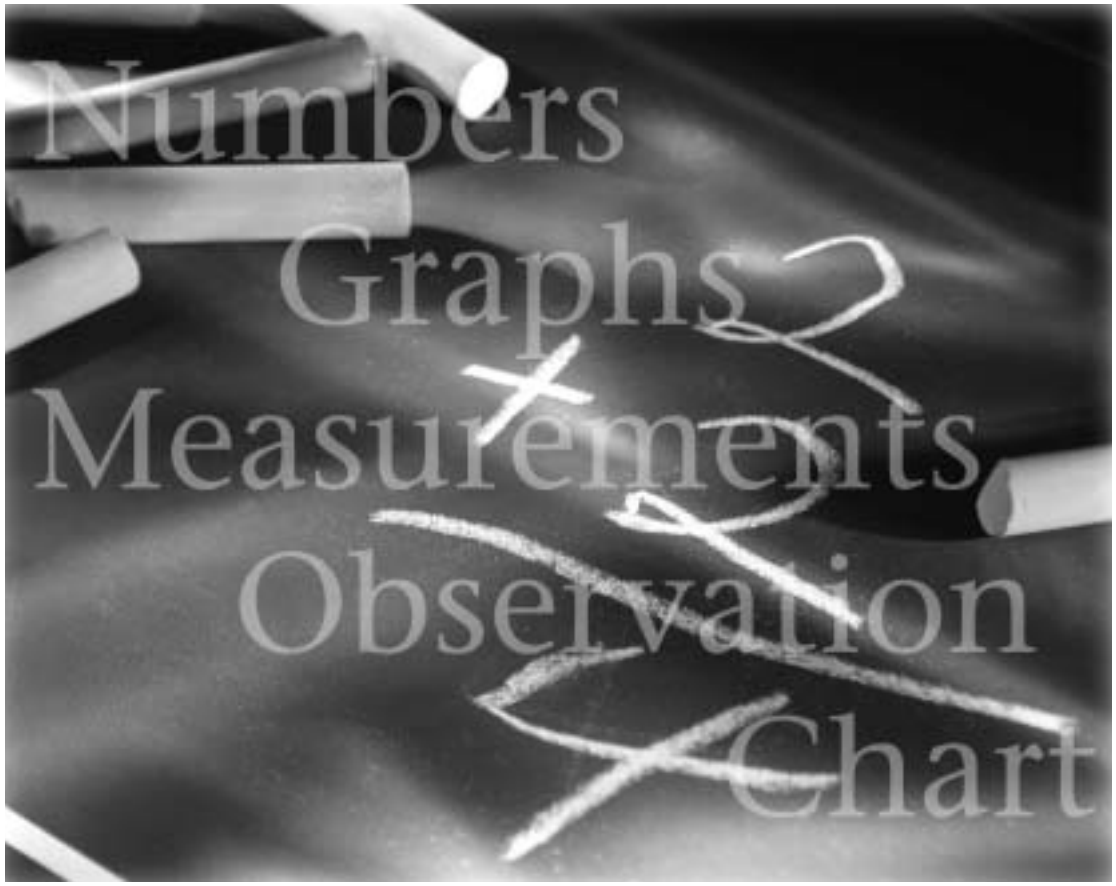
Constructed-responses will have a set, which scaffolds the students' thinking, and directions for the task.

Students receive a score of 0-3 points on their answer, with 0 being the lowest and 3 being the highest. A score of 2 or 3 is deemed proficient. A student's score depends on how closely his or her answer matches the description in the item-specific rubric and the anchor papers for each constructed-response item.

For each constructed-response item, an item-specific rubric is designed based on the general rubric. (See below for example.) Anchor papers, which are exemplary responses of typical student responses at each score point, are selected to guide the trained readers who score students' responses.

Constructed-Response Scoring Rubric

Score Point	Expectation
3	The response completely answers all parts of the question and displays thorough understanding of the skill(s) within the standard being tested. The response provides an answer that: • clearly and correctly indicates the mathematical ideas and processes applied and provides evidence of the problem-solving techniques and/or thinking skills used to solve the problem. • clearly and correctly labels all answers, if required.
2	The response partially, but adequately, answers the question and displays satisfactory understanding of the skill(s) being tested. The response provides an answer that: • correctly completes all parts of the task but contains minor flaws in the reasoning or a minor notational error in recording a solution to a part of the problem. • completes the entire task but uses incomplete, or disorganized information to represent the solution process and/or a problem solution.
1	The response demonstrates a limited understanding of the skill(s) being tested. The response provides an answer that: • correctly solves the problem but does not provide clearly acceptable answers for the entire problem. • provides an acceptable response for one part of the question, but fails to attempt a solution for the other part(s) of the problem
0	The response demonstrates a lack of understanding of the skill(s) being tested. The response provides an answer that: • does not answer the question clearly enough to demonstrate any understanding. • provides incorrect or inappropriate responses to the question.


Numbers
Graphs
Measurements
Observation
Chart

Reporting Category: C1 – Numbers and Operations

Ability Level: A1 – Conceptual Understanding

Performance Indicator: Use and identify place value.

Test Item:

Which number is the standard form of four hundred seventy-eight thousand, six hundred eight?

A 400,078,608

B 4,780,680

C 478,680

D 478,608

Correct Response D: The student should have knowledge of place value and be able to convert the words that represent numbers into the standard form of a number.

Four hundred thousand = 400,000

Seventy thousand = 70,000

Eight thousand = 8,000

Six hundred = 600

Eight = 8

400,000 + 70,000 + 8,000 + 600 + 8 = 478,608

Response A: This response is incorrect. It represents an error in which the student may have confused four hundred million for four hundred thousand.

Response B: This response is incorrect. It represents an error in which the student may have confused four million seven hundred eighty thousand for four hundred seventy-eight thousand and confused six hundred eighty for six hundred eight.

Response C: This response is incorrect. It represents an error in which the student may have confused six hundred eighty for six hundred eight.

Reporting Category: C1 – Numbers and Operations

Ability Level: A2 – Procedural Skills

Performance Indicator: Use order of operations to solve problems.

Test Item:

What is the value of the expression below?

$24 - 3 \times 2 + 21 \div 7$

A 9

B 21

C 45

D 69

Correct Response B: The student should know and apply the order of operations to get the correct answer.

First: $24 - 6 + 21 \div 7$ (6 is the product of 3 and 2)

Next: $24 - 6 + 3$ (3 is the quotient of 21 and 7)

Next: $18 + 3$ (18 is the difference between 24 and 6)

Finally: 21 (21 is the sum of 18 and 3)

Response A: This response is incorrect. It represents an error in which the student may have performed the four operations starting from left to right in the sequence written.

Response C: This response is incorrect. It represents an error in which the student may have done the first three operations from left to right in the sequence written to get 42 and then found the sum of 42 and $(21 \div 7)$. Therefore $42 + 3 = 45$.

Response D: This response is incorrect. It represents an error in which the student may have divided the product of 21 and 23 by 7.

Reporting Category: C1 – Numbers and Operations

Ability Level: A3 – Problem Solving

Performance Indicator: Use models and drawings to identify, compare, add, and subtract fractions with like denominators and to add and subtract decimals; use both to solve problems.

Test Item:

On Sunday, 0.5 inches of snow fell. On Monday, 1.3 inches of snow fell. How much **more** snow fell on Monday than on Sunday?

A 0.2 inches

B 0.8 inches

C 1.2 inches

D 1.8 inches

Correct Response B: The student should recognize that this problem involves finding the difference between the amount of snow that fell on Monday and the amount of snow that fell on Sunday.

$1.3 - 0.5 = 0.8$

Response A: This response is incorrect. It represents an error in which the student may have found the difference between 0.5 and 0.3.

Response C: This response is incorrect. It represents an error in which the student may have found the difference between 0.5 and 0.3 and then added 1.

Response D: This response is incorrect. It represents an error in which the student may have found the sum of 1.3 and 0.5.

Reporting Category: C1 – Numbers and Operations

Ability Level: A3 – Problem Solving

Performance Indicator: Add and subtract decimals; multiply and divide decimals by whole numbers in problems representing practical situations.

Test Item:

Write your answer to Question 3 on page 4 in your Answer Booklet. Be sure to answer Parts A, B, and C.

Scotty went to the post office. He bought three books of 20 first class stamps and 50 postcards. First class stamps cost $0.37 each.

A What is the total cost of the first class stamps Scotty bought? Show your work or explain how you got your answer.

B If the 50 postcards cost $11.50, what is the cost of one postcard? Show your work or explain how you got your answer.

C Find the total cost of the items Scotty bought. Show your work or explain how you got your answer.

Complete and Correct Response (similar to the following):

Part A: $22.20

Work:

First find the total number of first class stamps Scotty bought.
3 books 20 stamps per book = 60 first class stamps
Then find the total cost of the 60 stamps.
60 stamps × $0.37 per stamp = $22.20

Part B: $0.23

Work:

If 50 postcards cost $11.50 then divide to find the cost of one postcard.
$11.50 ÷ 50 = $0.23

Part C: $33.70

Work:

To find the total cost of the items Scotty bought, find the sum of the cost of all the first-class stamps and the cost of all the postcards.
$22.20 + $11.50 = $33.70

Score Point	Description
3	Student gives correct answer to Parts A, B, and C and shows appropriate work.
2	Student gives correct answer to any two parts and show appropriate work. OR Student gives correct answer to all parts but does not show any appropriate work. (Student shows understanding of the problem, but makes minor computational errors.)
1	Student gives correct answer to Part A or B only and shows appropriate work for that part. (Student demonstrates minimal understanding of the problem.)
0	Student's response is totally incorrect or irrelevant.

Reporting Category: C2 – Algebra and Functions

Ability Level: A1 – Conceptual Understanding

Performance Indicator: Generate number sequences given the first term and any basic computation rule (e.g., given a 4 and the rule of add 6, the number sequence is: 10, 16, 22, 28...).

Test Item:

Tom used 1 as the first number in a sequence. After the first number, the numbers form a geometric pattern. If the sequence continues in the same way, what should be the next two numbers?

1, 3, 9, 27, __, __

A 33, 39

B 36, 45

C 45, 63

D 81, 243

Correct Response D: The student should be able to recognize the rule used in the pattern is "multiply by 3." Then, 27 x 3 = 81 and, 81 x 3 = 243.

Response A: This response is incorrect. It represents an error in which the student may have thought the rule was "add 6."

Response B: This response is incorrect. It represents an error in which the student may have thought the rule was "add 9."

Response C: This response is incorrect. It represents an error in which the student may have thought the rule was "add 18."

Reporting Category: C2 – Algebra and Functions

Ability Level: A2 – Procedural Skills

Performance Indicator: Using whole numbers as a replacement set, find possible solutions to such inequalities as $8 + 4 > n$.

Test Item:

Which is the **smallest** whole number that can be used in place of n to make the inequality below true?

$18 + n > 24$

A 5

B 6

C 7

D 8

Correct Response C: The student should understand the meaning of the inequality symbol for "greater than."

$18 + 7 > 24$ then, $25 > 24$

Response A: This response is incorrect. It represents an error in which the student may have misunderstood the meaning of the symbol for "greater than" or found an incorrect sum for $18 + 5$.

Response B: This response is incorrect. It represents an error in which the student may have misunderstood the meaning of the symbol for "greater than" or found an incorrect sum for $18 + 6$.

Response D: This response is incorrect. It represents an error in which the student did not choose the *smallest* whole number to replace n that would make the inequality true.

Reporting Category: C2 – Algebra and Functions

Ability Level: A3 – Problem Solving

Performance Indicator: Use variables in open sentences to describe simple functions and relationships.

Test Item:

Emilio planned to buy some paperback books at the book fair. The books cost $4.25 each. Which number phrase can be used to show the total cost in dollars of *b* books?

A $b + 4.25$

B $4.25 \times b$

C $b - 4.25$

D $4.25 \div b$

Correct Response B: The student should understand that the product of b, the number of books bought, and $4.25, the cost per book, will give the total cost.

Response A: This response is incorrect. It represents an error in which the student chose the sum of $4.25 and the number of books to get the total cost.

Response C: This response is incorrect. It represents an error in which the student chose the difference between the number of books and $4.25 to get the total cost.

Response D: This response is incorrect. It represents an error in which the student chose the quotient of $4.25 and the number of books to get the total cost.

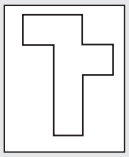
Reporting Category: C3 – Measurement and Geometry

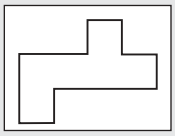
Ability Level: A1 – Conceptual Understanding

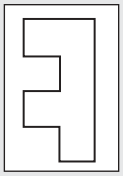
Performance Indicator: Identify shapes that have congruence, similarity, and/or symmetry of figures using a variety of methods, including transformational motions (e.g., translation/slide, rotation/turn, reflection/flip, enlargement/reduction) and models, drawings, and measurement tools.

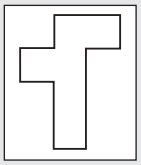
Test Item:

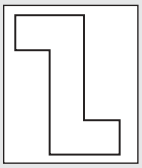
Which shape appears congruent to the shape drawn below?



A 

C 

B 

D 

Correct Response B: The student should understand the concept of congruency. The two geometric shapes are congruent because they have the same size and shape.

Responses A, C, and D: These responses are incorrect. They represent errors in which the student may not understand the concept of congruency. The shapes shown are not the same size and shape as the original shape.

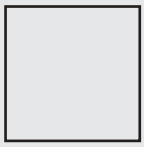
Reporting Category: C3 – Measurement and Geometry

Ability Level: A2 – Procedural Skills

Performance Indicator: Communicate the difference between perimeter and area.

Test Item:

Find the perimeter, in feet, of the square shown below.



12 feet

A 24 feet

B 48 feet

C 96 feet

D 144 feet

Correct Response B: The student should understand the concept of perimeter and be able to apply an algorithm for finding the perimeter of a square. The perimeter is the distance around a geometric shape.

Perimeter of a square = side length + side length + side length + side length = 12 + 12 + 12 + 12 = 48 feet

Perimeter of a square = 4 × side length = 4 × 12 = 48 feet

Response A: This response is incorrect. It represents an error in which the student may have added the length of only two sides of the square.

Response C: This response is incorrect. It represents an error in which the student may have incorrectly multiplied the length of one side of the square by the length of another side of the square.

Response D: This response is incorrect. It represents an error in which the student may have found the area of the square by finding the product of 12 and 12.

Reporting Category: C3 – Measurement and Geometry

Ability Level: A3 – Problem Solving

Performance Indicator: Determine totals and change due for monetary amounts in problem-solving situations.

Test Item:

Donna and Dan combined their money to buy a gift and a cake for a friend's birthday. Donna had $13.25 and Dan had $15.75. If they spent $16.95 for a gift, how much money should they have left to buy the cake?

A $12.05

B $12.15

C $13.00

D $13.95

Correct Response A: The student should be able to reason that the difference between the sum of Donna's and Dan's money and the amount spent on a gift is the amount left.

$13.25 + $15.75 = $29.00, then $29.00 – $16.95 = $12.05

Response B: This response is incorrect. It represents an error in which the student may have performed the operation of subtraction incorrectly.

Response C: This response is incorrect. It represents an error in which the student may have rounded $29.00 to $30.00 and rounded $16.95 to $17.00 and then found the difference.

Response D: This response is incorrect. It represents an error in which the student may have performed the operation of subtraction incorrectly.

Reporting Category: C4 – Data Analysis and Probability

Ability Level: A1 – Conceptual Understanding

Performance Indicator: Model and then compute measures of central tendency, including mean, median, and mode.

Test Item:

The number of goals Cece's soccer team scored in each of the 11 games played this season are shown below.

0, 2, 0, 1, 0, 2, 1, 3, 2, 2, 1

What is the mode of the number of goals scored per game by the team?

A 0

B 1

C 2

D 3

Correct Response C: The student should be able to recognize the mode of a set of data. The mode is the score that appears most often in the data set. In this case the number 2 appears the greatest number of times in the data set (four times).

Response A: This response is incorrect. It represents an error in which the student may have chosen the lowest score.

Response B: This response is incorrect. It represents an error in which the student may have chosen the median of the scores.

Response D: This response is incorrect. It represents an error in which the student may have chosen the highest score or the range of the scores.

Category: C4 – Data Analysis and Probability

Ability Level: A2 – Procedural Skills

Performance Indicator: Model and then compute measures of central tendency, including mean, median, and mode.

Test Item:

The math test scores in Ms. Smith's second period class are shown below.

80%, 95%, 84%, 62%, 86%, 95%, 72%

What is the median test score?

A 62%

B 80%

C 84%

D 95%

Correct Response C: The student should be able to order the test score data from least to greatest and then select the median or middle score from the ordered data.

When ordered from least to greatest the scores are as follows:

62%, 72%, 80%, 84%, 86%, 95%, 95%,

The middle or median score is the fourth score from either end, which is 84%.

Response A: This response is incorrect. It represents an error in which the student may have chosen the lowest score or the middle score based on the order the scores were presented in the problem.

Response B: This response is incorrect. It represents an error in which the student may have incorrectly tried to find the mean of the test scores.

Response D: This response is incorrect. It represents an error in which the student may have chosen the mode of the scores, the score that appears most often.

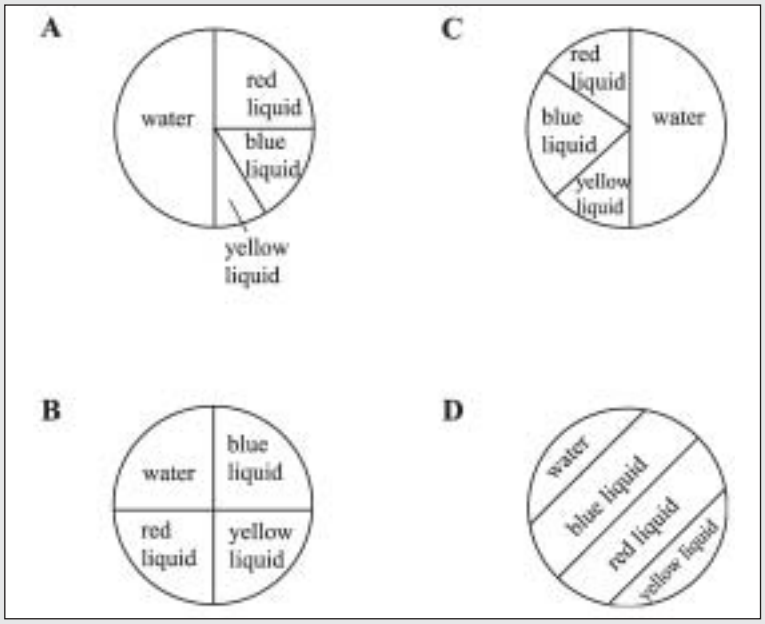
Reporting Category: C4 – Data Analysis and Probability

Ability Level: A3 – Problem Solving

Performance Indicator: Collect, organize, read, and interpret data using a variety of graphic representations, including tables, line plots, stem-and-leaf plots, scatter plots, histograms. Use data to draw and explain conclusions and predictions.

Test Item:

In science class, Jason made a mixture using 50% water, 25% red liquid, 20% blue liquid, and 5% yellow liquid. Which circle graph below best shows the mixture in its correct proportions?



Correct Response A: The student should understand how to read a circle graph. The half section of the circle labeled "water" represents 50% water. The quarter section of the circle labeled "red liquid" represents 25% red liquid. The just under one-quarter section of the circle labeled "blue liquid" represents 20% blue liquid. The smallest section of the circle labeled "yellow liquid" represents 5% yellow liquid.

Response B: This response is incorrect. The circle is divided into quarters, which represents 25% of each liquid.

Response C: This response is incorrect. The section of the circle for red should be one-fourth of the circle to represent 25%, but it is not.

Response D: This response is incorrect. Circle graphs should not be constructed using parallel lines to create sections.

MATHEMATICS SAMPLE TEST

1 What is the standard form of one hundred twenty-seven thousand, four hundred six?

A 127.46

B 12,746

C 127,406

D 127,416

2 A grocery store ordered 38 cases of soda. Each case holds 12 cans of soda. Which is the best ESTIMATE of the total number of cans of soda the store ordered?

A 200

B 400

C 600

D 800

3 When rounding the number 1,567 to the hundreds place, which digit in the number will be **most** helpful in deciding your answer?

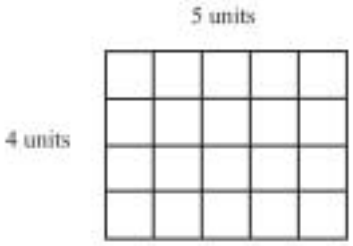
A 1

B 5

C 6

D 7

4 What is the perimeter of the figure below?



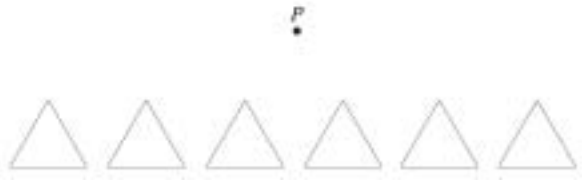
A 14 units

B 16 units

C 18 units

D 20 units

5 The six triangles shown below are equilateral and congruent.



If the triangles are moved so that one vertex from each triangle is attached to Point *P* and no triangles overlap, what regular polygon could be formed?

A rhombus

B octagon

C pentagon

D hexagon

6 In gym class, Dan jumped a distance of twelve feet, six inches. Kevin jumped ten feet, eight inches. How much farther did Dan jump than Kevin?

A 1′8"

B 1′10"

C 2′8"

D 2′10"

7 Pam chose the number 3 as the first term in a sequence. To get the next two terms after the first she used the rule "add 2, subtract 1." The first 7 terms in her sequence are shown below.

3, 5, 4, 6, 5, 7, 6, __, __

If she continues the pattern using the same rule, which should be the next two terms in Pam's number sequence?

A 7, 8

B 8, 7

C 8, 9

D 9, 10

8 Which is the **largest** whole number that can be used in place of n to make the inequality below true?

$n - 7 < 24$

A 29

B 30

C 31

D 32

9 Patricia plans to buy stuffed animals at the school fair. Each animal costs $3.75. Which number sentence shows the total amount *(t)* in dollars it should cost Patricia to buy y animals?

A $t = 3.75 \times y$

B $t = 3.75 + y$

C $t = y - 3.75$

D $t = y \div 3.75$

10 Marianna decided to paint two walls in her room. Each wall is 8 feet tall and 12 feet long. What is the total area, in square feet, of the walls that Marianna plans to paint?

A 40 square feet

B 96 square feet

C 136 square feet

D 192 square feet

11 Cliff surveyed his classmates to find the percent of students who chose softball, baseball, football, volleyball, basketball, track, or soccer as their favorite sport. Which would be the **best** way for Cliff to display the data he collected so that it could be **quickly** understood by the class?

A stem-and-leaf plot

B circle graph

C box-and-whisker plot

D double bar graph

12 Connie recorded her height on her birthday for the 6 years shown in the table below.

Height on Birthday

Year	Height (inches)
1993	43.5
1994	47
1995	50
1996	53.25
1997	57.5
1998	60

Between which two consecutive years did Connie's height change the **least**?

A between 1993 and 1994

B between 1995 and 1996

C between 1996 and 1997

D between 1997 and 1998

13 The students in Ms. Thompson's class sold bars of chocolate for a fundraiser. The total number of bars sold by each student on the first day of the sale is shown below.

22, 7, 6, 1, 3, 12, 8, 4, 4, 0, 14, 4, 6

What is the mean of the number of bars sold by the students on the first day of the sale?

A 4

B 6

C 7

D 22

14 Richard donated 9 boxes of instant oatmeal to the school food drive. Each box contained 8 packets of oatmeal. What is the total number of packets of oatmeal Richard donated?

A 17

B 64

C 72

D 81

15 Sharon drew a picture of a square pyramid.What is the product of the number of faces and the number of edges of Sharon's pyramid?

A 40

B 25

C 13

D 10

Write your answer to Question 16 on page 6 in your Answer Booklet. Be sure to answer Parts A,B, and C.

16 The students in Ms. Spicer's class collected data on the number of cookies packaged in newly purchased one pound boxes of Jenny's Bite-Sized sugar cookies. The number of cookies they counted in different boxes of cookies is shown below.

50, 53, 48, 51, 51, 49, 51

A What is the mode of the number of cookies counted in the boxes of cookies? Explain how you got your answer.

B What is the median number of cookies per box? Show your work or explain how you got your answer.

C Find the mean of the number of cookies per box in the 7 boxes studied. Round your answer to the nearer whole number. Show your work or explain how you got your answer.

MATHEMATICS SAMPLE TEST ANSWER KEY

Item Number	Reporting Category	Ability Level	Answer Key
1	C1	A1	C
2	C1	A2	B
3	C1	A3	C
4	C3	A1	C
5	C3	A1	D
6	C3	A2	B
7	C2	A1	B
8	C2	A2	B
9	C2	A3	A
10	C3	A3	D
11	C4	A1	B
12	C4	A2	D
13	C4	A3	C
14	C1	A1	C
15	C3	A3	A
16	C4	A2	CR*

* Indicates a constructed-response item. See the following page for the rubric and sample response.

Rubric for Question 16:

Score Point	Description
3	Student gives correct answer to Parts A, B, and C and shows appropriate work.
2	Student gives correct answer to any 2 parts and shows appropriate work. OR Student gives correct answer to all parts but does not show any appropriate work. (Student shows understanding of the problem, but makes minor computational errors.)
1	Student gives correct answer to one part only and shows appropriate work for that part. (Student demonstrates minimal understanding of the problem.)
0	Response is totally inaccurate and/or irrelevant, or there is no response.

Complete and Correct Response for Question 16 (similar to the following):

Part A **51 cookies**

Explanation: The mode is the number(s) in a data set that appear(s) most frequently. The number of cookies that appears most frequently in the data set is 51, which appears three times.

Part B **51 cookies**

Work: The median is the middle number in a data set after the data has been ordered from least to greatest.

First, order the data as follows: 48, 49, 50, 51, 51, 51, 53

Then find the middle number, which is the fourth number in from either end. That number is 51.

Part C **50 cookies (rounded down from 50.43)**

Work: To find the mean, divide the sum of the data by the number of pieces of data. First find the sum. 50 + 53 + 48 + 51 + 51 + 49 + 51 = 353
Then, divide the sum by the number of pieces of data (which is 7):
353÷7 = 50.43 which rounds down to 50.

SCIENCE INTRODUCTION

The National Science Education Standards define science literacy in a very broad sense.

Scientific literacy is the knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity. It also includes specific types of abilities. Scientific literacy means that a person can ask, find, or determine answers to questions derived from curiosity about everyday experiences. It means that a person has the ability to describe, explain, and predict natural phenomena. Scientific literacy entails being able to read with understanding articles about science in the popular press and to engage in social conversation about the validity of the conclusions. Scientific literacy implies that a person can identify scientific issues underlying national and local decisions and express positions that are scientifically and technologically informed. A literate citizen should be able to evaluate the quality of scientific information on the basis of its source and the methods used to generate it. Scientific literacy also implies the capacity to pose and evaluate arguments based on evidence and to apply conclusions from such arguments appropriately. Individuals display their scientific literacy in different ways, such as appropriately using technical terms, or applying scientific concepts and processes. And individuals often will have differences in literacy in different domains, such as more understanding of life-science concepts and words, and less understanding of physical-science concepts and words. Scientific literacy has different degrees and forms; it expands and deepens over a lifetime, not just during the years in school. But the attitudes and values established toward science in the early years will shape a person's development of scientific literacy as an adult.

– (NSES, http://www.nap.edu/html/nses/html/2.html#perspectives).

The goals of science assessments in Nevada are at least threefold. First, they will provide a measure of student achievement relative to the intended learning outcomes. Assessment and learning are closely related, so as the intended outcomes are defined for assessment, teachers and students will redefine their expectations to meet the outcomes. Second, they should provide an operational definition of important curricula, and a mechanism for communicating the expectations of the standards to everyone concerned. Third, there should be a feedback mechanism in the state's science education system that can lead to changes by stimulating adjustments in policy, guiding professional development, promoting changes in instructional practices, and encouraging students to improve their understanding of science.

Nevada's Content and Performance Standards in Science define the breadth and depth of science that all our students will come to understand. The intended learning outcomes of science education within the science standards are rich and varied. These outcomes include:

- Knowing and understanding scientific facts, concepts, principles, laws, and theories.
- The ability to inquire and to design and perform scientific investigations.
- The ability to reason scientifically.
- The ability to communicate effectively about science.
- The ability to use science to make personal decisions and to take positions on appropriate issues.

The Nevada Science Content Standards consist of 24 individual standards that are clustered into four categorical strands for reporting purposes on the Grade 5 Science Assessment:

C1 – Physical Science (Standards 1 through 5)
C2 – Life Science (Standards 6 through 9, including standards 15.1 and 15.2)
C3 – Earth/Space/Environmental Science (Standards 11 through 17, including standard 15.3)
C4 – Science Skills, Processes, and Investigations (Standards 18 through 24)

In the following tables are the standards and progress indicators tested at grade 5. The progress indicators that are check-marked are priority standards.

Nevada Science Standards and Progress Indicators

Standard 1: *Forces and Motion*
Students understand that forces such as gravitational, electrical, and magnetic influence the motion of objects.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe the relationship that exists between the size of a change in motion of an object to the size of a push or pull on that object.
- Investigate and describe that objects usually move downward when they fall or are released in the air or on ramps.
- Investigate and describe that objects may move in a variety of ways (e.g., straight lines or by rotating, rolling, or revolving).
- Classify objects by whether they sink or float in air or water.
- Investigate and describe the ways that magnets attract and repel each other and certain kinds of other materials.

Standard 2: *Structure and Properties of Matter*
Students understand that materials have distinct properties which depend on the amount of matter present, its chemical composition, and structure.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

✔ Separate mixtures based on their properties.

- Describe and classify matter in terms of elements, compounds, and mixtures.
- Investigate and describe the ways that solids remaining after a solvent has been evaporated may form distinctive patterns of crystals.

✔ Investigate and describe how materials can be broken down physically into smaller and smaller pieces, and that each piece may retain its same properties.

- Investigate and describe how the observable properties of a material depend on its composition.

Standard 3: *Energy and Matter – Interactions and Forms*
Students understand that changes in temperature and pressure can alter states of matter. Energy exists in many forms, and one form can change into another.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe how warm objects cool and cool objects warm when they are put together, until they reach the same temperature.

✔ Investigate and describe how energy can be used to bring about changes in matter (e.g., melting an ice cube).

✔ Investigate and describe how vibrations produce sound.

✔ Describe how electrical components are utilized in the design of simple electrical circuits.

Standard 4: *Chemical Reaction*
Students understand that chemical reactions change substances into different substances.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe how observable changes in matter may occur when different materials are heated, mixed, or cooled.

Standard 6: *Structure and Function*
Students understand that all life forms, at all levels of organization, use specialized structures and similar processes to meet life's needs.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

✔ Investigate, compare, and contrast the different life cycles of different living things.

✔ Investigate, compare, and contrast the different structures of organisms that serve different functions for growth, reproduction, and survival.

✔ Investigate and describe how plants and animals have features that help them live in various environments.

Standard 7: *Internal and External Influences on Organisms*
Students understand that organisms respond to internal and external influences.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe how clues for behavior may be detected by the senses in humans and other living things.
- Investigate and describe how some organisms can learn from their experiences.
- Investigate and describe how some environmental conditions are more favorable than others to living things.

Standard 8: *Heredity and Diversity*
Students understand that life forms are diverse, and that they pass some characteristics to their offspring.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe how some characteristics between offspring and parents are inherited, but other characteristics are learned.
- Explain how living things may be classified on the basis of similar features, behaviors, and/or habits.

✔ Describe how there are variations among individuals within a population of a certain species.

✔ Reproduction is a characteristic essential to the continuation of every species.

Standard 9: *Evolution – The Process of Biological Change*
Students understand that life forms change over time.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

✔ Classify animals and plants according to their physical characteristics.

- Investigate and describe how environmental changes allow some plants and animals to survive and reproduce, but others may die.
- Investigate and describe how individuals of the same kind differ in their characteristics and sometimes the differences give an advantage in surviving and reproducing.

Standard 10: *Earth Structures and Composition*
Students understand that the Earth is composed of interrelated systems of rocks, water, air, and life.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe how rocks are composed of different combinations of minerals.
- ✔ Investigate and describe how erosion and deposition rates can be affected by the slope of the land and by human activities.
- Investigate and describe how the surface of the Earth, including the ocean floor has a varied topography.
- Investigate and describe how soil is made of many different biological and mineral materials, and varies from place to place.

Standard 11: *Earth Models*
Students understand that the Earth may be represented by a variety of maps and models.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Identify compass directions on a map.
- Explain how the Nevada state road map is a tool that can be used to navigate from one location to another.
- Explain how many things can be represented by two-dimensional maps and three-dimensional models.

Standard 12: *Earth History*
Students understand that Earth systems (such as weather and mountain formation) change on variety.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- ✔ Explain that the surface of the Earth changes due to a variety of factors (e.g., some are abrupt volcanoes and earthquakes, and others happen very slowly, such as the wearing down of mountains).
- Investigate and describe how fossils are evidence of past life.

Standard 13: *Cycles of Matter and Energy*
Students understand that Earth systems have a variety of cycles through which energy and matter continually flow.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Explain that the sun is the main source of energy for people, which they use in many ways (e.g., **fossil fuels** derive their energy indirectly from the sun).
- Investigate and describe various meteorological phenomena (e.g., flooding, thunderstorms, and drought).

✔ Investigate and describe the factors which affect the processes such as evaporation and condensation.

✔ Investigate and describe how change is an ongoing process that can be seen throughout the natural world.

Standard 14: *The Solar System and the Universe*
Students understand that the Earth is part of a planetary system within the Milky Way Galaxy, which is part of the known universe.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe the basic components of our solar system (e.g., planets, moons, asteroids, comets, and the sun).
- Describe the apparent motion of celestial objects across the sky.
- Describe how the stars in the sky are not scattered evenly, and they are not all the same in brightness or color.

Standard 15: *Ecosystems*
Students will demonstrate an understanding that ecosystems display patterns of organization, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

✔ Investigate and describe how organisms interact with each other and with non-living parts of their habitats.

✔ Investigate and describe how, for any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

✔ Explain how the sun is the primary source of energy for nearly every ecosystem and that living things get what they need to survive from their environments.

- Investigate and describe how the local ecosystem has unique characteristics.
- Investigate and describe how resources have distinct properties which determine their usefulness.
- Investigate and describe how technology can be used to extend resources (e.g., recycling).
- Explain how Earth materials, including those found in Nevada, provide many of the resources that humans use.
- Explain that humans tend to use resources to meet more than their minimal needs for food, shelter and warmth.

Standard 16: *Natural Resources*
Students demonstrate and understand that natural resources include renewable and non-renewable materials and energy. All organisms, including human, use resources to maintain and improve their existence, and the use of resources can have positive and negative consequences.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe how resources have distinct properties which determine their usefulness.
- Investigate and describe how technology can be used to extend resources (e.g., recycling).
- Explain how Earth materials, including those found in Nevada, provide many of the resources that humans use.
- Explain that humans tend to use resources to meet more than their minimal needs for food, shelter and warmth.

Standard 17: *Conservation*
Students understand that humans have the unique ability to change personal and societal behavior based on ethical considerations regarding other organisms, the planet as a whole and future generations.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Investigate and describe how consumptive patterns of people vary in different places.

✔ Investigate and describe that ecosystems have components that can be observed to change, while other components appear to stay the same.

✔ Explain that changes in environments can be natural events or influenced by human activities.

Standard 18: *Scientific, Historical, and Technological Perspectives*
Students understand that science is a unique way of knowing about things. Many men and women have contributed to the traditions of science. The ability to pursue activities and careers in science is accessible to people from all cultures and all levels of ability.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Explain that science is a systematic way of exploring the world.

✔ Develop explanations using observations (evidence) from investigations.

- Describe key scientists, classical experiments in science, and technological inventions that lead to a better understanding of the impact of science on society.
- Recognize and explain that science is an activity done by more than one person working together.
- Explain that technology enables scientists and others to study the motion of objects that are moving rapidly or that are hardly moving at all.

✔ Explain that science is an ongoing process of investigation (inquiry).

Standard 19: *Reasoning and Critical Response Skills*
Students understand that many decisions require critical consideration of scientific evidence.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

✔ Explain that claims must be supported by evidence and logical argument.

Standard 20: *Systems, Models, Risk, and Predictions*
Students understand that a variety of models can be used to describe or predict things and events.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Develop a physical model to explain how something works or how something is constructed.
- ✔ Predict that some events are more likely to happen than others.
- ✔ Describe and compare the components and interrelationships of a simple system (e.g., trace the flow of water through an aquarium, a filter, and a pump).

Standard 21: *Scientific Values and Attitudes*
Students understand that science is an active process of systematically examining the natural world.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Keep records of investigations and observations, without changing those records later.
- ✔ Make careful observations and test things more than once.
- Offer reasons for findings and consider the reasons suggested by others.

Standard 22: *Communication Skills*
Students understand that a variety of communication methods can be used to share scientific information.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Give written or oral instructions that others are able to follow.
- ✔ Organize information into charts, tables, and graphs.
- Collaborate on a group project.

Standard 23: *Scientific Applications of Mathematics*
Students understand that scientific inquiry is enhanced and often communicated by using mathematics.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

✔ Explain that sometimes changing one thing causes changes in another.

- Explain to other students how to go about solving numerical problems.
- Make quantitative estimates of familiar lengths, weights, and time intervals, and check them by measurements.
- Recognize the appropriate unit for a particular measurement (e.g., meters for length, seconds for time, and kilograms for mass).
- Recognize that repeated measurements of the same thing are likely to vary slightly.

Standard 24: *Laboratory Skills and Safety*
Students can appropriately and safely apply the tools and techniques of scientific inquiry.

Grade 5 Progress Indicators

By the end of Grade 5, students know and are able to do everything required in the previous grades and:

- Use safety equipment and attire.
- Measure and mix dry and liquid materials safely in prescribed amounts.
- Use provided materials to construct objects for a particular task.

✔ Label measurements and diagrams properly.

- Use appropriate technology in lab procedures for measuring and recording.
- Manipulate objects and observe events in an experiment.

CRT Grade 5 Science Examination Item Matrix						
Content Cluster/ Ability Level (Cognitive Domain)	C1 Physical Science (Standards 1–5)	C2 Life Science (Standards 6–9, Including Standards 15.1 & 15.2)	C3 Earth/Space/ Environmental Science (Standards 11–17, including standard 15.3	C4 Science Skills, Processes, and Investigations (Standards 18–24)	Total Items	Percent
A1 Conceptual Understanding	5	5	5	2	17	35
A2 Procedures	7	7	5	4	23	47
A3 Problem Solving	3*	3*	3*	0	9	18
Total Items	15	15	13	6	49	
Percent	31	31	27	11		100

* Indicates a constructed-response item.

Constructed-Response Items

Constructed-response items present students with a question or questions that require students to respond in written form. Typically items ask students to not only recall knowledge, but also demonstrate more complex cognitive behaviors such as organizing, summarizing, comparing, relating, analyzing, inferring, concluding, predicting, solving, and/or applying. A constructed-response item can appear in several different formats and reflect either the A2 or A3 Ability Level. An item may be specific in its request or more open-ended.

Constructed-responses will have a set, which scaffolds the students' thinking, and directions for the task.

Students receive a score of 0-3 points on their answer, with 0 being the lowest and 3 being the highest. A score of 2 or 3 is deemed proficient. A student's score depends on how closely his or her answer matches the description in the item-specific rubric and the anchor papers for each constructed-response item.

For each constructed-response item, an item-specific rubric is designed based on the general rubric. (See below for example.) Anchor papers, which are exemplary responses of typical student responses at each score point, are selected to guide the trained readers who score students' responses.

Score Point	Expectation
3	Three key elements. AND Answer is complete, all parts of question are answered. Answer is correct, although there may be minor errors in some details of the answer. No major errors.
2	Two key elements. AND All parts of question are answered, although some parts of the answer may be incomplete or incorrect. Answer contains significant errors.
1	One key element. AND Answer is incomplete, only part of question is answered, or answer may contain significant errors. OR All parts of question are answered, although major errors/misconceptions are present in answer.
0	Although the student attempts to address the question, the response contains insufficient evidence of appropriate skills/knowledge to successfully accomplish the task.

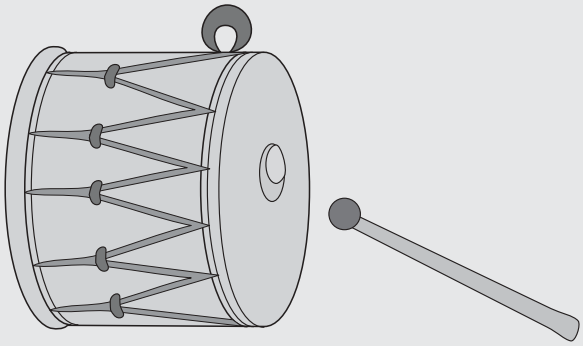
Reporting Category: C1 – Physical Science (3.5.3) Energy and Matter

Ability Level: A1 – Fundamental Principles

Performance Indicator: Investigate and describe how vibrations produce sound.

Test Item:

When the drum is struck with the mallet, sound is produced.



Sound is produced in the drum through

A color changes.

B increased vibrations.

C increased mass.

D temperature decreases.

Correct Answer B: Vibrations produce sound.

Response A: This response is incorrect. Color change is not a characteristic of sound.

Response C: This response is incorrect. Increased mass will not produce sound.

Response D: This response is incorrect. Sensing a temperature change does not affect the sound that is currently being produced.

Reporting Category: C1 – Physical Science (3.5.3)

Ability Level: A2 – Conceptual Understanding

Performance Indicator: Investigate and describe how vibrations produce sound.

Test Item:

Which drum will most likely have the lowest pitch?

A 

B 

C 

D 

Correct Response C: The large, deep, wide drum will produce the lowest pitch.

Response A: This response is incorrect. A drum with a narrow base will produce a higher pitch.

Response B: This response is incorrect. The body of the drum tapers down. It will produce a higher pitch.

Response D: This response is incorrect. The drum is small in size and narrows at the base. It will produce a very high pitch.

Reporting Category: C1 – Physical Science (3.5.3)

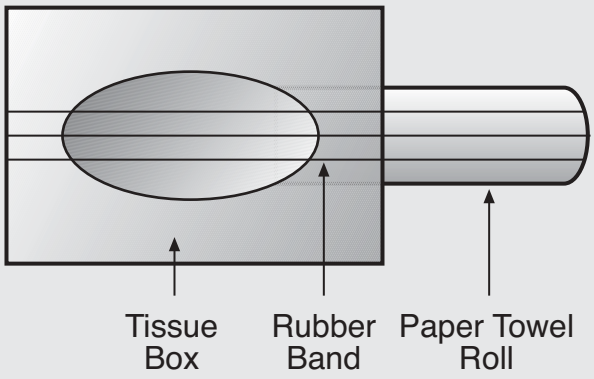
Ability Level: A3 – Practical Reasoning (Open Ended)

Performance Indicator: Investigate and describe how vibrations produce sound.

Test Item:

Write your answer to Question # on page # in your Answer Booklet. Be sure to answer Parts A,B, and C.

A banjo is made from a tissue box, a paper towel roll, and three rubber bands. When the rubber bands are plucked, they produce sounds.



A Explain why the rubber bands make a sound when plucked?

B What can be done to produce lower pitched sounds from the rubber bands?

C What can be done to make the rubber bands produce loud and soft sounds?

Complete and correct response (similar to the following)

Three Key Elements

Part A
One key element
Rubber bands produce sound when plucked because:

Part B
One key element
To produce lower pitched sounds from the rubber bands:

- the paper towel roll could be cut shorter to shorten the length the rubber bands are stretched. Also, the rubber bands could be replaced with longer, thicker ones. This would produce a lower pitched sound. The rubber bands could also be effectively shortened holding the fingers across the bands.

Part C
One key element
To produce loud and soft sounds:

- The rubber bands must be plucked harder to produce a louder sound. The rubber bands must be plucked softer to produce softer sounds.

Score Point	Description
3	Three key elements. AND Answer is complete, all parts of question are answered. Answer is correct, although there may be minor errors in some details of the answer. No major errors.
2	Two key elements. AND All parts of question are answered, although some parts of answer may be incomplete or incorrect. Answer contains significant errors.
1	One key element. AND Answer is incomplete, only part of the question is answered, or answer may contain significant errors. OR All parts of question are answered, although major errors/ Misconceptions are present in answer.
0	Although the student attempts to address the question, the response contains insufficient evidence of appropriate skills/knowledge to successfully accomplish the task.

Reporting Category: C2 – Life Science (6.5.2)

Ability Level: A1 – Fundamental Principles

Performance Indicator: Investigate, compare, and contrast the different structures of organisms that serve different functions for growth, reproduction, and survival.

Test Item:

A student walks from the school to the playground on a cold day. Which body structure would be the first to sense a change in air temperature?

A lungs

B skin

C muscles

D hair

Correct Answer B: The skin contains nerves that detect changes to the surrounding environment. These nerves send messages to the brain that receive the messages.

Response A: This response is incorrect. The lungs can indicate a temperature change but will not be the first to do so.

Response C: This response is incorrect. The muscles are not sense organs. They assist in locomotion of the organism.

Response D: This response is incorrect. Hair beyond the follicle is no longer living and cannot sense change.

Reporting Category: C2 – Life Science (6.5.2)

Ability Level: A2 – Conceptual Understanding

Performance Indicator: Investigate, compare, and contrast the different structures of organisms that serve different functions for growth, reproduction, and survival.

Test Item:

Which of the following best describes the function of the human skeletal system?

A It removes needed oxygen from the air.

B It carries oxygen to muscles and vital organs.

C It removes waste products from the body.

D It protects and supports internal structures.

Correct Answer D: The human skeleton supports the weight of the tissues and organs of the body.

Response A: This response is incorrect. Lungs remove the oxygen from the environment.

Response B: This response is incorrect. The circulatory system carries oxygen to the muscles of the body.

Response C: This response is incorrect. The excretory system removes waste products from the body.

Reporting Category: C2 – Life Science (6.5.2)

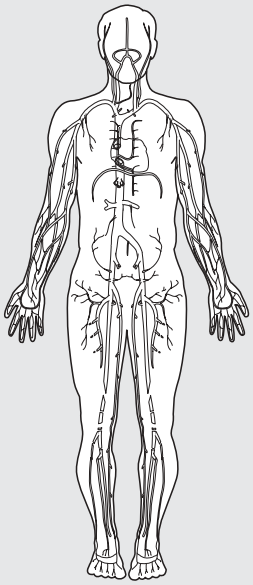
Ability Level: A3 – Practical Reasoning

Performance Indicator: Investigate, compare, and contrast the different structures of organisms that serve different functions for growth, reproduction, and survival.

Test Item:

Write your answer to Question # on page # in your Answer Booklet. Be sure to answer Parts A,B, and C.

The circulatory and immune system work together to keep the body healthy.



A What role does the circulatory system play in keeping the body healthy?

B What role does the immune system play in keeping the body healthy?

C Explain how the circulatory and immune systems work together to keep the body healthy.

Complete and correct response (similar to the following)

Three key elements

Part A
One key element
The role the circulatory system plays in keeping the body healthy:

- The circulatory system carries needed oxygen and nutrients to all parts of the body.

Part B
One key element
The role the immune system plays in keeping the body healthy:

- As the blood circulates through the body, it carries white blood cells and antibodies to all areas of the body to fight infection and disease

Part C
One key element
How the circulatory and immune systems work together to keep the body healthy:

- The circulatory system carries the antibodies and T-cells to the wounds and infected areas to assist in healing and keeping the body healthy.

Score Point	Description
3	Three key elements. AND Answer is complete, all parts of question are answered. Answer is correct, although there may be minor errors in some details of the answer. No major errors.
2	Two key elements. AND All parts of question are answered, although some parts of answer may be incomplete or incorrect. Answer contains significant errors.
1	One key element. AND Answer is incomplete, only part of the question is answered, or answer may contain significant errors. OR All parts of question are answered, although major errors/misconceptions are present in answer.
0	Although the student attempts to address the question, the response contains insufficient evidence of appropriate skills/knowledge to successfully accomplish the task.

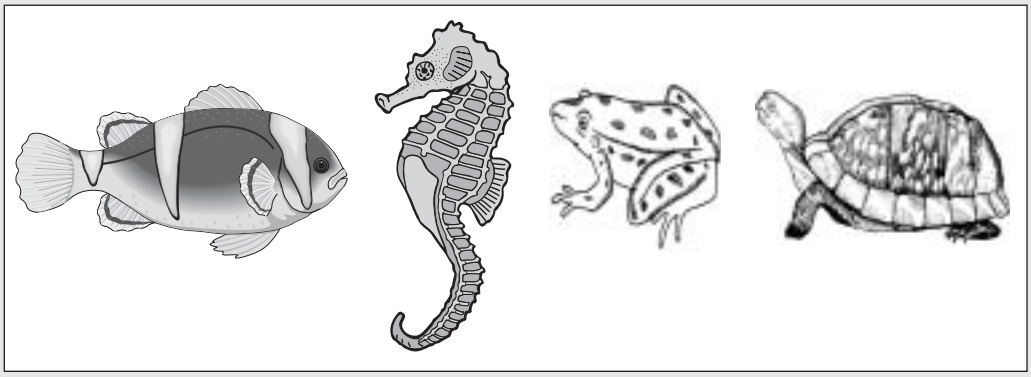
Reporting Category: C2 – Life Science (8.5.2)

Ability Level: A1 – Fundamental Understanding

Performance Indicator: Explain how living things may be classified on the basis of similar features, behaviors, and/or habits.

Test Item:

The organisms below have a common characteristic.



Which characteristic can be used to classify these four organisms in the same group?

A having lungs

B having hair

C having backbones

D having feet

Correct Answer C: The organisms can be classified as vertebrates because they all have backbones.

Response A: This response is incorrect. The fish and seahorse have gills that filter oxygen from the water.

Response B: This response is incorrect. None of the organisms have body hair.

Response D: This response is incorrect. The fish and seahorse have appendages but not feet like the frog and turtle.

Reporting Category: C2 – Life Science (8.5.2)

Ability Level: A2 – Conceptual Understanding

Performance Indicator: Explain how living things may be classified on the basis of similar features, behaviors, and/or habits.

Test Item:

A parrot, flamingo and goose have been classified together.

Which of the following characteristics classifies the organisms as birds rather than reptiles?

A They all have skeletons.

B They all have feathers.

C They all use oxygen.

D They all lay eggs.

Correct Answer B: A unique characteristic to all birds is feathers.

Response A: This response is incorrect. Reptiles also have backbones.

Response C: This response is incorrect. Reptiles also use oxygen.

Response D: This response is incorrect. Some reptiles also lay eggs.

Reporting Category: C2 – Life Science (8.5.2)

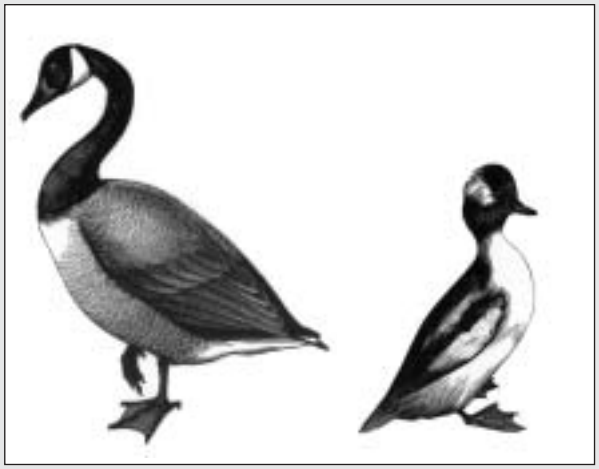
Ability Level: A3 – Practical Reasoning

Performance Indicator: Explain how living things may be classified on the basis of similar features, behaviors, and/or habits.

Test Item:

Write your answer to Question # on page # in your Answer Booklet. Be sure to answer Parts A and B.

The animals below are classified as birds.



A Identify two physical features that the animals above have in common.

B Describe two behaviors the animals have in common.

Complete and correct response (similar to the following)

Four key elements

Part A
Two key elements
Two physical features the animals have in common are including but not limited to:

- they have feathers
- they have beaks
- they have wings
- they have webbed feet
- they have eyes on the side of the head
- they have paired nostrils

Part B
Two key elements
Two behaviors they have in common are including but are not limited to:

- they fly
- they swim
- they lay eggs
- they build nests
- they migrate

Score Point	Description
3	Four key elements. AND Answer is complete, all parts of question are answered. Answer is correct, although there may be minor errors in some details of the answer. No major errors.
2	Two or three key elements. AND All parts of question are answered, although some parts of answer may be incomplete or incorrect. Answer contains significant errors.
1	One key element. AND Answer is incomplete, only part of the question is answered, or answer may contain significant errors. OR All parts of question are answered, although major errors/misconceptions are present in answer.
0	Although the student attempts to address the question, the response contains insufficient evidence of appropriate skills/knowledge to successfully accomplish the task.

Reporting Category: C3 – Earth /Space Science (12.5.1)

Ability Level: A1 – Fundamental Principles

Performance Indicator: Explain that the surface of the Earth changes due to a variety of factors. Some are abrupt such as volcanoes and earthquakes, and others happen very slowly, such as the wearing down of mountains.

Test Item:

Which of the following natural events will slowly change the shape of a mountain?

A a blowing wind

B a volcanic eruption

C an earthquake

D a landslide

Correct Response A: Over time, the blowing wind can erode the mountain.

Response B: This response is incorrect. A volcanic eruption is a powerful release of pressure that results in major structural change.

Response C: This response is incorrect. An earthquake is a shift in earth plates that results in visible structural change.

Response D: This response is incorrect. A landslide involves a portion of the mountain relocating in a large mass. This would result in a structural change in the mountain.

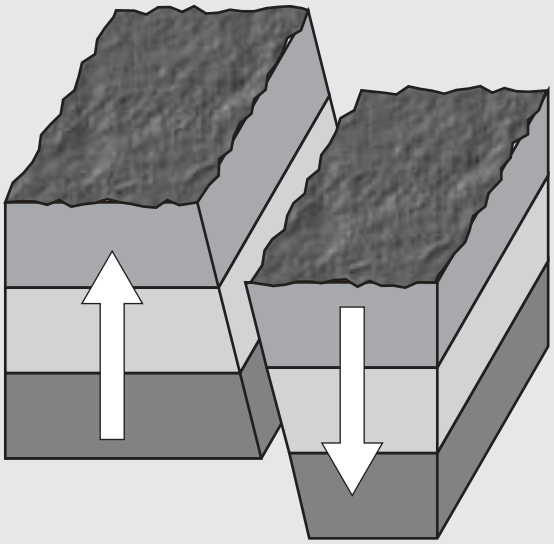
Reporting Category: C3 – Earth /Space Science (12.5.1)

Ability Level: A2 – Conceptual Understanding

Performance Indicator: Explain that the surface of the Earth changes due to a variety of factors. Some are abrupt such as volcanoes and earthquakes, and others happen very slowly, such as the wearing down of mountains.

Test Item:

Natural events occur on our planet every day.



Which natural event most likely caused the change in the rock layers above?

A mudslide

B thunderstorm

C windstorm

D earthquake

Correct Response D: An earthquake is a shift in Earth's plates that can result in a visible fault line.

Response A: This response is incorrect. A mudslide is a dislodging of a mass of earth due to oversaturation from excessive rainfall.

Response B: This response is incorrect. Thunderstorms cause erosion, which is a slow process.

Response C: This response is incorrect. Windstorms cause erosion, which is a slow process.

Reporting Category: C3 – Earth /Space Science (12.5.1)

Ability Level: A3 – Practical Reasoning

Performance Indicator: Explain that the surface of the Earth changes due to a variety of factors. Some are abrupt such as volcanoes and earthquakes, and others happen very slowly, such as the wearing down of mountains.

Test Item:

Write your answer to Question # on page # in your Answer Booklet. Be sure to answer Parts A and B.

The natural structures of Bryce Canyon have changed.

A Describe the length of time it most likely took for the change to occur above.

B Identify and describe two types of erosion that could have changed the shape of the canyon.

Complete and correct response (similar to the following)

Three key elements

Part A
One key element
The length of time for the changes to occur:

- it most likely took hundreds or thousands of years. Erosion of the rock canyon is a slow process.

Part B
Two key elements
Two types of erosion that could have changed the shape of the canyon are:

- Wind erosion. As the wind blows, the rock is slowly broken down. Also, as small particles of rock fall from the rock it can be blown against the existing rock to further erode it away.
- Water erosion will break down the rock as it rains. Also, as water washes down the rock, the grains of rock rub against the existing rock to further break it down.

Score Point	Description
3	Three key elements. AND Answer is complete, all parts of question are answered. Answer is correct, although there may be minor errors in some details of the answer. No major errors.
2	Two key elements. AND All parts of question are answered, although some parts of answer may be incomplete or incorrect. Answer contains significant errors.
1	One key element. AND Answer is incomplete, only part of the question is answered, or answer may contain significant errors. OR All parts of question are answered, although major errors/misconceptions are present in answer.
0	Although the student attempts to address the question, the response contains insufficient evidence of appropriate skills/knowledge to successfully accomplish the task.

Reporting Category: C3 – Earth Science (10.5.2)

Ability Level: A1 – Fundamental Principles

Performance Indicator: Investigate and describe how erosion and deposition rates can be affected by the slope of the land and by human activities.

Test Item:

Which of the following human activities will **most** increase the rate of erosion?

A mowing grass

B trimming trees

C plowing fields

D planting flowers

Correct Answer C: Plowing fields loosens the soil from the roots of plants. The wind and rain will more easily wash it away.

Response A: This response is incorrect. Mowing the grass may expose or loosen soil, but the grass roots will minimize erosion.

Response B: This response is incorrect. Trimming trees may also expose the undergrowth to rain and wind but roots from surrounding plants will minimize erosion.

Response D: This response is incorrect. Planting flowers will reduce the rate of erosion due to the roots of the flowers holding the soil together.

Reporting Category: C3 – Earth Science (10.5.2)

Ability Level: A2 – Conceptual Understanding

Performance Indicator: Investigate and describe how erosion and deposition rates can be affected by the slope of the land and by human activities.

Test Item:

Which of the following hillsides will experience the most erosion?

A

C

B

D

Correct Answer A: A hillside with the most soil exposed will experience the most erosion.

Response B: This response is incorrect. The roots of the grass will hold the soil together.

Response C: This response is incorrect. The roots from the trees and grass will hold the soil together.

Response D: This response is incorrect. The roots of the shrubs and grass will hold the soil together, and less erosion will occur.

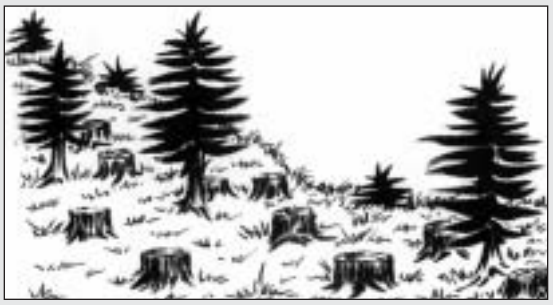
Reporting Category: C3 – Earth Science (10.5.2)

Ability Level: A3 – Practical Reasoning

Performance Indicator: Investigate and describe how erosion and deposition rates can be affected by the slope of the land and by human activities.

Test Item:

The area below is being deforested.



What effect will weather conditions **most likely** have on the clear-cut forest hillside?

A The rains will help the soil stay muddy, making it harder to wash away.

B The winds will uncover rocks that help keep the soil moist for the uncut trees.

C The winds and rain will speed up how quickly the soil erodes from the area.

D The increased amount of sunlight will help the tree stumps to grow into full-grown trees.

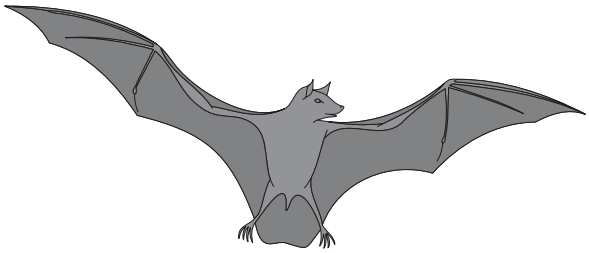
Correct Answer C: As the roots of the cut trees die, the soil will become loose and be washed away by the winds and rains.

Response A: This response is incorrect. Muddy soil on a slope will wash down the hillside.

Response B: This response is incorrect. Rocks do not absorb water or help soil stay moist.

Response D: This response is incorrect. Increased sunlight will dry out the tree stumps.

1 Bats like the one below rest in caves during the day and hunt at night.



Which characteristic would most help a bat search for food?

A small eyes

B big ears

C long wings

D sharp teeth

2 When hydrogen gas and oxygen gas combine they form water. Which term best describes water?

A element

B solution

C compound

D mixture

3 A bear was seen roaming through a neighborhood and knocking over trashcans. Which of the following most likely caused the bear's behavior?

A The bear learned to trust people.

B The bear learned that food was available.

C The bear was avoiding large predators.

D The bear was searching for shelter to hibernate.

4 Skunks have a very powerful odor for self-defense.

One day, a skunk uses this defense against a wolf. The next time the wolf comes upon a skunk the wolf will most likely

A make skunks its favorite food.

B avoid the next skunk it sees.

C attack the skunk from the front.

D continue to follow the skunk.

5 Which of the following behaviors (traits) is learned by a puppy?

A drinking water when thirsty

B panting when hot

C fetching a stick for its master

D wagging its tail

6 Which of the following would make certain an organism would be classified as a plant?

A Its tissues are made of cells.

B Each cell lacks a nucleus.

C Its body contains a skeleton.

D Some cells can photosynthesize.

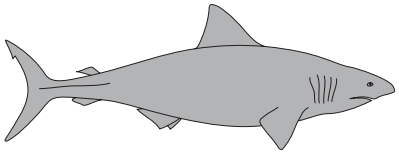
7 Which of these animals is a reptile?

A

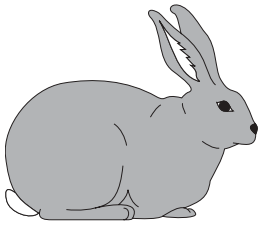
B

C

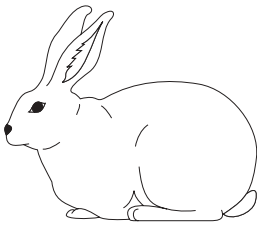
D



8 The two rabbits below are from the same litter.



Normal rabbit



White rabbit

In a grassy meadow the normal rabbit will have a better chance of surviving than the white rabbit because it

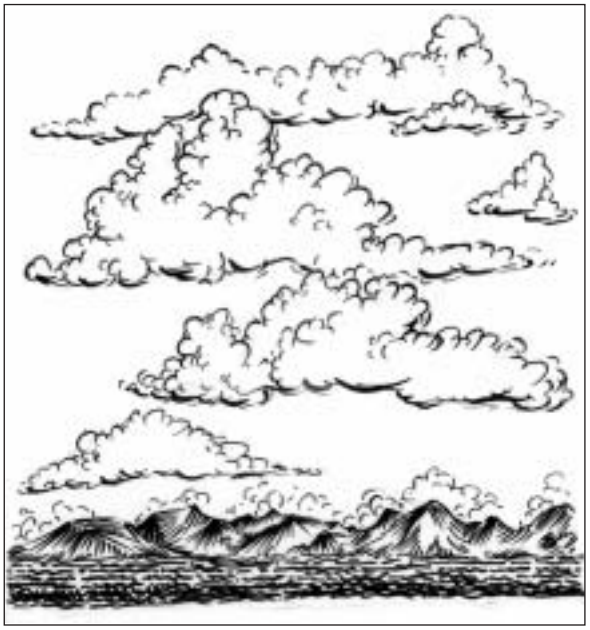
A has a keen sense of smell.

B blends with its environment.

C has a keen sense of hearing.

D keeps cooler in the summer.

9 Several processes are occurring in the picture below.



Which of the following processes forms the cloud?

A precipitation

B evaporation

C condensation

D reproduction

10 Which of the following would cause a metal pot of water to boil more quickly?

A placing the pot under the midday sun

B holding the pot over an open flame

C stirring the water in the pot with a spoon

D rubbing sandpaper against the pot

11 This compost pile is filled with rotting leaves, branches and kitchen scraps. It will someday be added to a garden.

How do the rotting materials help a garden ecosystem?

A They provide nutrients to the soil.

B They provide shade for young trees.

C They produce light energy for seeds.

D They produce water for the water cycle.

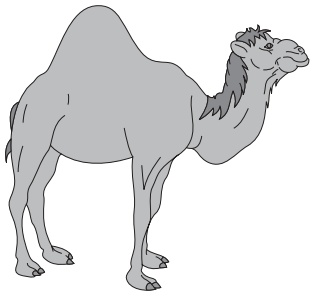
12 Which of the following animals would survive best in a desert environment?

A

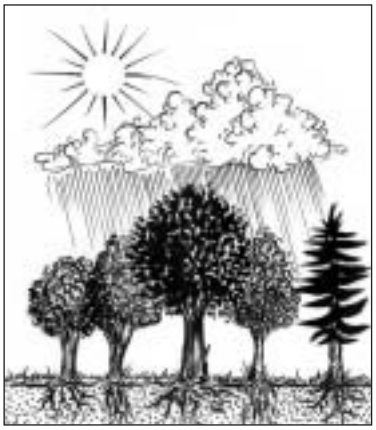
B

C

D



13 Ecosystems require energy to survive.



What is the main energy source of the ecosystem above?

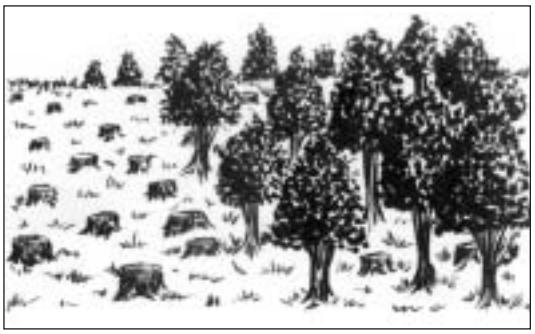
A soil

B trees

C rain

D sun

14 A change to the environment below has occurred.



Which of the following most likely explains the change to the environment above?

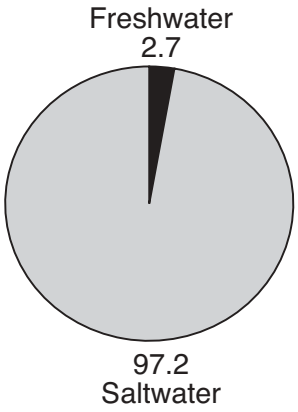
A Strong winds uprooted the taller trees in the forest.

B Wood-eating insects destroyed the older trees.

C Trees were cut down to use as building materials.

D Flood waters washed away trees growing in loose soil.

15 The graph below shows the percentages of water on Earth.



Which of following best explains the data provided in the graph?

A The planet is running out of water.

B Most of the planet's water is salty.

C Saltwater affects Earth negatively.

D Freshwater is difficult to locate.

16 Energy is needed to set the bicycle in motion.

Which of the following shows the correct order of energy transfer for the bike to move?

A rider → chain → pedals → wheels

B rider → pedals → chain → wheels

C wheels → chain → pedals → rider

D wheels → pedals → chain → rider

17 According to a researcher's data, cheetahs can run up to 72 miles per hour. What else should be done to make sure data are correct?

A Collect data from young cheetahs.

B Collect data while cheetahs are feeding.

C Collect data while cheetahs are resting.

D Collect data from several cheetahs.

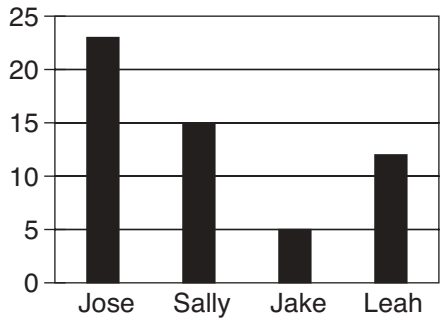
18 Students performed an experiment to determine which boat design could hold the most pennies before sinking.

Boat Design Results

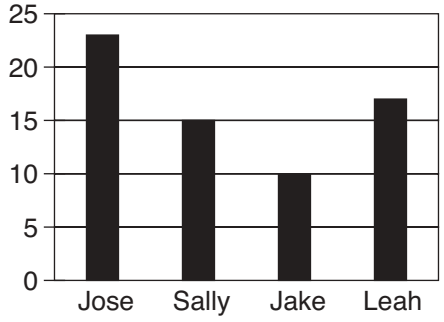
Student	Number of pennies without sinking
Jose	23
Sally	13
Jake	10
Leah	18

Which graph shows the correct information above?

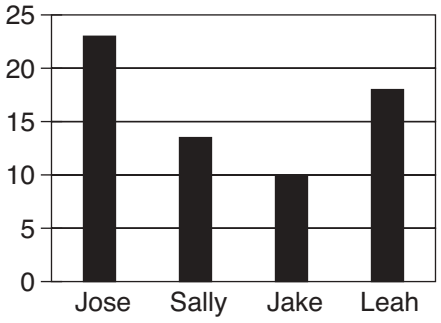
A



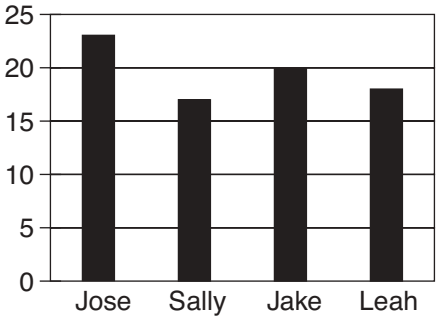
B



C

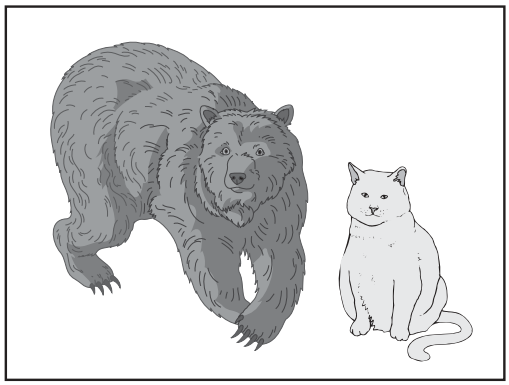


D

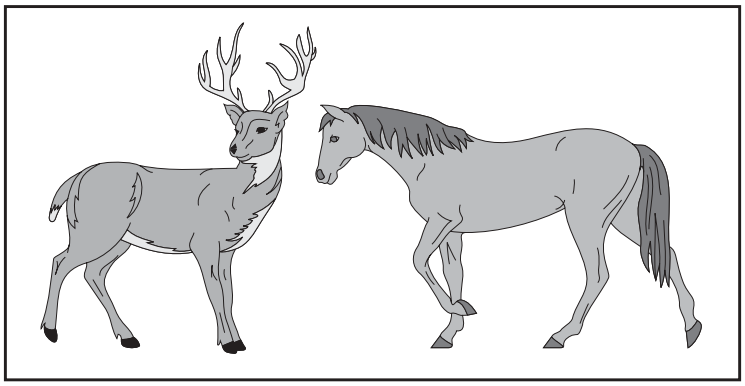


Write your answer to Question 19 on page 6 in your Answer Booklet. Be sure to answer Parts A and B.

19 The animals below have common characteristics.



Group A



Group B

A Describe two features that allow animals in groups A and B to be classified together.

B Describe one characteristic that prevents the groups of animals from being classified together.

Write your answer to Question 20 on page 6 in your Answer Booklet. Be sure to answer Parts A and B.

20 Both rainforests and deserts provide homes to many living things.

A Which of the two environments most likely provides a home to the greatest number of living things? Explain your answer.

B Explain why animals would prefer one environment over another on a hot summer day.

SCIENCE SAMPLE TEST ANSWER KEY

Item Number	Reporting Category	Ability Level	Answer Key
1	C2	A1	B
2	C1	A2	C
3	C2	A2	B
4	C2	A2	B
5	C2	A1	C
6	C2	A1	D
7	C2	A2	B
8	C2	A2	B
9	C3	A2	C
10	C3	A1	B
11	C2	A2	A
12	C2	A2	D
13	C3	A2	D
14	C3	A1	C
15	C4	A2	B
16	C4	A2	B
17	C4	A1	D
18	C4	A1	C
19	CR-C2	A3	*
20	CR-C2	A3	*

* Indicates a constructed-response item. See the following pages for the rubrics and sample responses.

Rubric for Question 19:

Score Point	Description
3	Three key elements. AND Answer is complete, all parts of question are answered. Answer is correct, although there may be minor errors in some details of the answer. No major errors.
2	Two key elements. AND All parts of question are answered, although some parts of answer may be incomplete or incorrect. Answer contains significant errors.
1	One key element. AND Answer is incomplete, only part of the question is answered, or answer may contain significant errors. OR All parts of question are answered, although major errors/misconceptions are present in answer.
0	Although the student attempts to address the question, the response contains insufficient evidence of appropriate skills/knowledge to successfully accomplish the task.

Three key elements

Part A
Two key elements

Two features that allow the animals to be classified together are:

- they have body hair
- they have live births
- they have backbones
- they breathe oxygen
- they are warm blooded

Part B
One key element

A characteristic that prevents the groups from being classified together:

- includes but is not limited to, group B have hooves, group B are herbivores, group B are prey, group A are predators.

Rubric for Question 20:

Score Point	Description
3	Three key elements. AND Answer is complete, all parts of question are answered. Answer is correct, although there may be minor errors in some details of the answer. No major errors.
2	Two key elements. AND All parts of question are answered, although some parts of answer may be incomplete or incorrect. Answer contains significant errors.
1	One key element. AND Answer is incomplete, only part of the question is answered, or answer may contain significant errors. OR All parts of question are answered, although major errors/misconceptions are present in answer.
0	Although the student attempts to address the question, the response contains insufficient evidence of appropriate skills/knowledge to successfully accomplish the task.

Three key elements

Part A
Two key elements

The environment that provides a home to the greatest number of living things:

- rainforest

Explanation:

- Because it offers the best conditions for living things to survive. Water, sun and food are more accessible.

Part B
One key element

Explain why an animal would prefer one environment over another on a hot summer day:

- The animals would likely choose to live in the rainforest because the trees can create shade from the sun. Shade usually results in cooler temperatures than out in the open. Rainforests also have plenty of water to drink when it is needed.

1 2 3 4 5 6 7 8 9 10 11 12 A B C D E

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